

حمل الآن

مجانا وحصريا

امتحانات رقم (1)

الترم الثاني



A Choose the correct answer:

- 1 $2^3 \times 3^3 = \dots\dots\dots$ ($5^4, 6^4, 6^2, 6^3$)
- 2 $\sqrt[3]{64} = \dots\dots\dots$ ($2, 4, 8, 64$)
- 3 If $x = \frac{1}{2}, y = 3$, then $x^y = \dots\dots\dots$ ($\frac{1}{4}, \frac{1}{8}, \frac{-1}{8}, 8$)
- 4 $(-2x)(3x) = \dots\dots\dots$ ($6x^2, -6x^2, -6x, -5x$)
- 5 $-9x^3 \div (-3x) = \dots\dots\dots$ ($3x^2, -3x^2, -3x, 3x$)
- 6 The area of a square whose side length 4 cm $\dots\dots\dots$ The area of a square whose diagonal length 6 cm ($<, >, =$, otherwise)
- 7 The image of the point (2,-1) by the translation $(x, y) \rightarrow (x + 3, y)$ is $\dots\dots\dots$
[(0,5), (-1,4), (0,3), (5,-1)]
- 8 Drawing a colored ball from a box containing identical balls of unknown colors is $\dots\dots\dots$ (random experiment , not a random experiment , impossible event , certain event)
- 9 The rotation $R(O, 90^\circ)$ followed by rotation $R(O, 90^\circ)$ is equivalent to the rotation $\dots\dots\dots$
[$R(O, 180^\circ)$, $R(O, 90^\circ)$, $R(O, 270^\circ)$, $R(O, -270^\circ)$]

B Answer each of the following:

- 1 Arrange the following numbers in a descending order:

$$16 \times 10^{-6}, 1.5 \times 10^{-5}, 0.8 \times 10^{-5}, 14 \times 10^{-4}$$

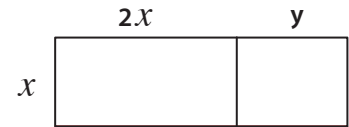
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- 2 Find in the simplest form the algebraic expression that represents the area of the opposite shape.



- 3 A trapezium has an area of 45 square inches and a height of 5 inches. Find the length of its middle base.

- 4 Draw A of length 6 cm and bisect it using a ruler and compass.

- 5 If a card is drawn randomly from identical cards numbered from 20 to 29. Find the probability that the card carries.

- a) An even number.
b) A number less than 22.

- 6 Find the quotient of $(x^2 - 2x - 15)$ divided by $(x - 5)$

- 7 Find in \mathbb{Z} the solution set for the inequality:

$$3x + 7 < 7x + 3$$

A Choose the correct answer:

- 1 If $\sqrt{x} = 4$, then $x = \dots\dots\dots$ (8 , 16 , ± 16 , 20)
- 2 If $x - 2 > 5$, then the value of x could be $\dots\dots\dots$ (5 , 6 , 7 , 8)
- 3 If $x^2 + y^2 = 20$, and $(x + y)^2 = 26$, then $xy = \dots\dots\dots$ (3 , 6 , 9 , 12)
- 4 The image of the point (5,-2) by a translation of 5 units in the positive direction of the X-axis is $\dots\dots\dots$ [(5,-7) , (5,-3) , (0,-2) , (10, -2)]
- 5 $\dots\dots\dots \div (-2x^2y) = 12xy^2$ ($6xy$, $-6xy$, $24x^3y^3$, $-24x^3y^3$)
- 6 The area of a rhombus is 32 square units, then the product of the lengths of its diagonals = $\dots\dots\dots$ (16 , 64 , 128 , 8)
- 7 The identity rotation is a rotation around the origin by an angle of measure $\dots\dots\dots$ (90° , 180° , 270° , 360°)
- 8 In an experiment of rolling a fair die once, the probability of appearing a number less than 5 is $\dots\dots\dots$ ($\frac{1}{3}$, $\frac{1}{2}$, $\frac{2}{3}$, $\frac{1}{6}$)
- 9 The image of the point (-1, 2) by reflection in the Y-axis followed by reflection in the Y-axis again is $\dots\dots\dots$ [(-1,-2) , (1,-2) , (-1,2) , (1,2)]

B Answer each of the following:

- 1 A cube has a volume of 729 cubic units, what is the length of its edge?

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- 2 Solve the following equation in \mathbb{Z} :

$$2x(x - 5) + 10x = 50$$

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- 3 A trapezium has an area of 315 square centimeters, a height of 15 cm, and the ratio between the lengths of its parallel bases is 3 : 4. What is the length of each base?

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- 4 Draw the triangle ABC where: $AB = 4$ cm , $BC = 5$ cm and $AC = 2$ cm , and determine the type of the triangle according to the measures of its angles.

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- 5 Divide $x^2 - 5x + 6$ by $x - 3$

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- 6 Find in the simplest form: $2x(3x - 1) + 3x(x + 2)$, then find the numerical value of the resulting expression when $x = 1$

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- 7 Simplify the following:

$$\sqrt[3]{\frac{125}{27}} \times \sqrt{\frac{81}{25}} \times \left(\frac{9}{5}\right)^0$$

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A Choose the correct answer:

- 1 $0.7 \times 0.004 = \dots\dots\dots$ (2.8×10^3 , 2.8×10^{-2} , 2.8×10^2 , 2.8×10^{-3})
- 2 In an experiment of rolling a fair die once, the probability of getting a number more than 3 is $\dots\dots\dots$ (0 , $33\frac{1}{3}\%$, 50% , 75%)
- 3 A trapezium with area 80 cm^2 and one of its parallel bases of length 4 cm and height 10 cm , then the length of the other base = $\dots\dots\dots$ cm. (6 , 12 , 16 , 20)
- 4 $|\sqrt[3]{-64}| = \dots\dots\dots$ (2 , 4 , 8 , -4)
- 5 If $(x - 3)(x + 3) = x^2 - m$, then $m = \dots\dots\dots$ (9 , -9 , 6 , -6)
- 6 If the area of a square is 200 cm^2 , then the length of its diagonal = $\dots\dots\dots$ cm. (10 , 20 , 15 , 25)
- 7 In the experiment of choosing a digit of the number 9,742 randomly, what is the sample space? ($\{2,4,9\}$, $\{2,4,9,7\}$, $\{97,74,42\}$, $\{9742\}$)
- 8 The image of point A($\dots\dots\dots$, $\dots\dots\dots$) is A'(7, -2) by reflection in Y-axis followed by reflection in X-axis. [$(7,0)$, $(-7,-2)$, $(7,2)$, $(-7,2)$]
- 9 The image of the point $(-2,4)$ under rotation $R(O,90^\circ)$ followed by rotation $R(O,180^\circ)$ is $\dots\dots\dots$ [$(-4,2)$, $(4,2)$, $(-4,-2)$, $(4,-2)$]

B Answer each of the following:

- 1 Find the solution set for the following equation in \mathbb{Z} :

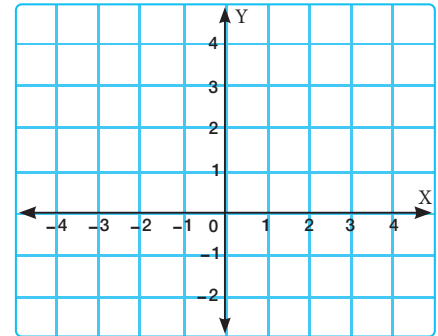
$$4(x^2 - 1) = 3(x^2 + 4)$$

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- 2 Draw $\triangle ABC$ where: A (3,4), B (4,1) and C (0,1), then draw its image by the translation $(x, y) \rightarrow (x-4, y-2)$.



- 3 A fair coin was tossed twice consecutively, and the sequence of heads and tails was observed. Find the probability of each of the following events:

- a) The event of getting two heads.
b) The event of getting at least one head.

- 4 Draw $\angle ABC$ of measure 70° , then bisect it using a ruler and compass.

- 5 Find the value of x in the equation:

$$8x^3 + 15 = -49$$

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- 6 Find the quotient of:

$$\frac{18x^3 + 12x^2 - 6x}{-6x}$$

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- 7 Find the diagonal length of the square whose area is equal to the area of a rhombus with diagonal lengths of 4 meters and 25 meters .

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A Choose the correct answer:

- 1 The rotation $R(O, 180^\circ)$ followed by rotation $R(O, 180^\circ)$ is equivalent to the rotation
[$R(O, 180^\circ)$, $R(O, 90^\circ)$, $R(O, 360^\circ)$, $R(O, 270^\circ)$]
- 2 $(-3)^2 = \dots\dots\dots$ (9 , -9 , 6 , -6)
- 3 In the experiment of forming a two-digit number consists of different digits from the set of digits {1,3,4}, how many elements are in the event that expresses the resulting number is odd? (2 , 3 , 4 , 6)
- 4 If $x = \sqrt{\frac{1}{9}}$, then $x^3 = \dots\dots\dots$ ($\frac{1}{3}$, $\frac{1}{9}$, $\frac{1}{27}$, $\frac{1}{81}$)
- 5 $84 \times 10^{-8} = m \times 10^{-7}$, then $m = \dots\dots\dots$ (84 , 8.4 , 0.84 , 840)
- 6 If the edge length of a cube is $3a$, then the volume of the cube =
($9a^2$, $27a^3$, $3a^3$, $9a^3$)
- 7 $(x^3 + x^2) \div x^2 = \dots\dots\dots$ (0 , x , $x + 1$, $2x + 1$)
- 8 A trapezium with an area 100 cm^2 , and a middle base length 8 cm, then
its height = cm. (8 , 10 , 12 , 12.5)
- 9 The image of the point (0,8) by the translation $(x, y) \rightarrow (x - 3, y - 4)$ is
[(-1,5) , (-3, 4) , (5,3) , (-1,3)]

B Answer each of the following:

- 1 Write the sample space of the random experiment of drawing a card from a set of identical cards numbered from 20 to 25 and observing the number written on the drawn card.

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- 2 Draw the triangle ABC where $AB = 4.5 \text{ cm}$, $AC = 3 \text{ cm}$ and $m(\angle A) = 72^\circ$

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- 3 A cuboid has a volume of $(12x^2y + 20xy^2)$ cubic units and a base area of $(4xy)$ square units. Find its height in terms of x and y .

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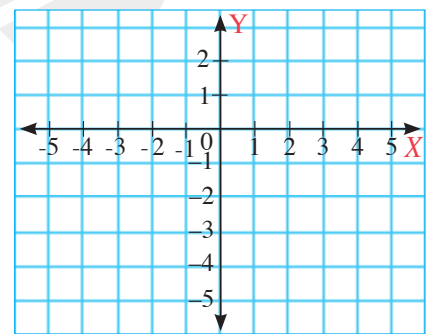
- 4 Draw $\triangle ABC$ where: $A(0, 2)$, $B(-5, 0)$ and $C(-3, -5)$, then draw the image of $\triangle ABC$ by a reflection in the y -axis.

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- 5 What is the solution set of the inequality $3x - 2 \leq 10$ in \mathbb{N} ?

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6 Which has a greater area ?

A rhombus with diagonal lengths 12 cm and 10 cm or a rectangle with a length of 8 cm and width of 7 cm.

7 Simplify the following

$$\left(\frac{3}{2}\right)^2 + \sqrt{\frac{25}{4}} + \sqrt[3]{\frac{125}{64}}$$

A Choose the correct answer:

- 1 The area of a rhombus with diagonal lengths 8 cm and 6 cm The area of a square with diagonal length 7 cm. ($>$, $<$, $=$, otherwise)
- 2 If $\frac{x-2}{2-x} = a$, then $a =$ (-2 , -1 , 1 , 2)
- 3 $x(x+1) - x =$ ($2x^2$, x^2 , $x^2 - x$, $x^2 + x$)
- 4 The quarter of 2^{20} is (2^5 , 2^{10} , 2^{19} , 1^{18})
- 5 If $x^3 = -1000$, then $x =$ (-10 , 10 , ± 10 , 100)
- 6 $\sqrt[3]{25 - \dots} = 2$ (16 , 9 , 17 , 15)
- 7 If $(x-2)(x+3) = x^2 + ax + b$, then $a + b =$ (5 , -5 , 4 , -4)
- 8 The image of the point (4, 5) by reflection in the y-axis followed by reflection in the X-axis is [(4,5) , (-4, -5) , (-4, 5) , (4, -5)]
- 9 In an experiment of rolling a fair die and observing the upper face, the probability of rolling a number that is not equal to 2 is ($\frac{1}{6}$, $\frac{2}{3}$, $\frac{5}{6}$, $\frac{1}{3}$)

B Answer each of the following:

- 1 In the experiment of tossing a fair coin two consecutive times and observing the sequence of heads and tails that appears.

Write the sample space indicating the number of its elements.

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- 2 Find the result of: $\frac{(-5)^4 \times 5^2 \times (-5)^3}{(-5)^6 \times (-5)^5}$

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- 3 Find the solution set in \mathbb{Q} for the inequality:

$$2 - 4(x + 2) \geq x + 9$$

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- 4 Draw the triangle ABC where: $AB = 7$ cm, $m(\angle A) = 65^\circ$ and $m(\angle B) = 50^\circ$, then determine the type of the triangle according to the lengths of its sides.

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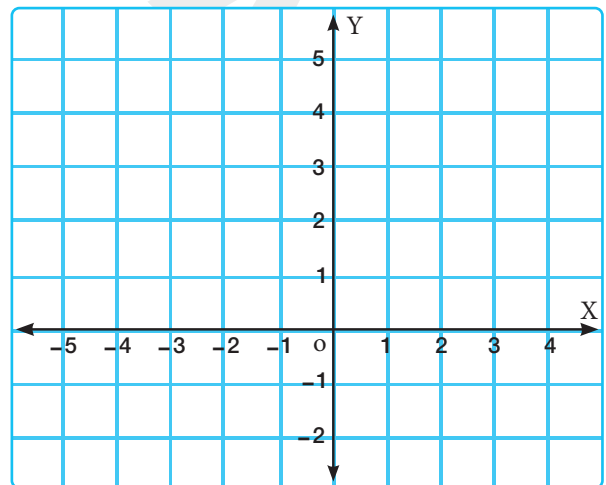
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- 5 Draw $\triangle ABC$ where: A $(-2, 5)$, B $(1, 2)$ and C $(4, 4)$, then draw its image under rotation $R(O, 90^\circ)$

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- 6 A bag contains 40 identical marbles. Hani draw randomly a marble and found that it is red. If the probability of drawing a red marble is $\frac{3}{5}$, then find the number of red marbles in the bag .

- 7 Find the product of:

a) $(m + 4n)(2m - n)$

b) $(\frac{1}{2}x + 1)(\frac{1}{2}x - 1)$

A Choose the correct answer:

- 1 $2^3 \times 3^3 = \dots\dots\dots$ ($5^4, 6^4, 6^2, 6^3$)
- 2 $\sqrt[3]{64} = \dots\dots\dots$ ($2, 4, 8, 64$)
- 3 If $x = \frac{1}{2}, y = 3$, then $x^y = \dots\dots\dots$ ($\frac{1}{4}, \frac{1}{8}, \frac{-1}{8}, 8$)
- 4 $(-2x)(3x) = \dots\dots\dots$ ($6x^2, -6x^2, -6x, -5x$)
- 5 $-9x^3 \div (-3x) = \dots\dots\dots$ ($3x^2, -3x^2, -3x, 3x$)
- 6 The area of a square whose side length 4 cm $\dots\dots\dots$ The area of a square whose diagonal length 6 cm. ($<, >, =$, otherwise)
- 7 The image of the point (2,-1) by the translation $(x, y) \rightarrow (x + 3, y)$ is $\dots\dots\dots$
[(0,5), (-1,4), (0,3), (5,-1)]
- 8 Drawing a colored ball from a box containing identical balls of unknown colors is $\dots\dots\dots$ (random experiment, not a random experiment, impossible event, certain event)
- 9 The rotation $R(O, 90^\circ)$ followed by rotation $R(O, 90^\circ)$ is equivalent to the rotation $\dots\dots\dots$
[$R(O, 180^\circ)$, $R(O, 90^\circ)$, $R(O, 270^\circ)$, $R(O, -270^\circ)$]

B Answer each of the following:

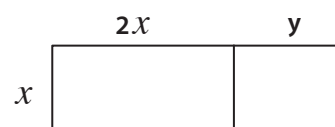
- 1 Arrange the following numbers in a descending order:

$$16 \times 10^{-6}, 1.5 \times 10^{-5}, 0.8 \times 10^{-5}, 14 \times 10^{-4}$$

The order: 14×10^{-4} , 16×10^{-6} , 1.5×10^{-5} , 0.8×10^{-5}

- 2 Find in the simplest form the algebraic expression that represents the area of the opposite shape.

The area = $x(2x + y) = 2x^2 + xy$

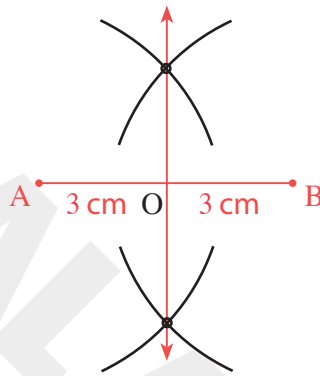


- 3 A trapezium has an area of 45 square inches and a height of 5 inches.

Find the length of its middle base.

$$\text{The length of middle base} = \frac{\text{the area}}{\text{height}} = \frac{45}{5} = 9 \text{ inches}$$

- 4 Draw \overline{AB} of length 6 cm and bisect it using a ruler and compass.



- 5 If a card is drawn randomly from identical cards numbered from 20 to 29. Find the probability that the card carries.

- a) An even number
b) A number less than 22

a) $\frac{1}{2}$

b) $\frac{1}{5}$

- 6 Find the quotient of $(x^2 - 2x - 15)$ divided by $(x - 5)$

$$\begin{array}{r} x+3 \\ x-5 \overline{) x^2 - 2x - 15} \\ \underline{-(x^2 - 5x)} \\ 3x - 15 \\ \underline{-(3x - 15)} \\ 0 \end{array}$$

The quotient is $x + 3$

- 7 Find in \mathbb{Z} the solution set for the inequality :

$$3x + 7 < 7x + 3$$

$$3x + 7 < 7x + 3$$

$$3x - 7x < 3 - 7$$

$$-4x < -4$$

$$x > 1$$

$$S.S = \{ 2, 3, 4, \dots \}$$

A Choose the correct answer:

- 1 If $\sqrt{x} = 4$, then $x = \dots\dots\dots$ (8, **16**, ± 16 , 20)
- 2 If $x - 2 > 5$, then the value of x could be $\dots\dots\dots$ (5, 6, 7, **8**)
- 3 If $x^2 + y^2 = 20$, and $(x + y)^2 = 26$, then $xy = \dots\dots\dots$ (**3**, 6, 9, 12)
- 4 The image of the point (5, -2) by a translation of 5 units in the positive direction of the X -axis is $\dots\dots\dots$ [(5, -7), (5, -3), (0, -2), **(10, -2)**]
- 5 $\dots\dots\dots \div (-2x^2y) = 12xy^2$ ($6xy$, $-6xy$, $24x^3y^3$, **$-24x^3y^3$**)
- 6 The area of a rhombus is 32 square units, then the product of the lengths of its diagonals = $\dots\dots\dots$ (16, **64**, 128, 8)
- 7 The identity rotation is a rotation around the origin by an angle of measure $\dots\dots\dots$ (90° , 180° , 270° , **360°**)
- 8 In an experiment of rolling a fair die once, the probability of appearing a number less than 5 is $\dots\dots\dots$ ($\frac{1}{3}$, $\frac{1}{2}$, **$\frac{2}{3}$** , $\frac{1}{6}$)
- 9 The image of the point (-1, 2) by reflection in the Y -axis followed by reflection in the Y -axis again is $\dots\dots\dots$ [(-1, -2), (1, -2), **(-1, 2)**, (1, 2)]

B Answer each of the following:

- 1 A cube has a volume of 729 cubic units, what is the length of its edge?

The length of edge = $\sqrt[3]{729} = 9$ units

- 2 Solve the following equation in \mathbb{Z} :

$$2x(x - 5) + 10x = 50$$

$$2x^2 - 10x + 10x = 50$$

$$2x^2 = 50$$

$$x^2 = 25$$

$$x = \pm 5$$

- 3 A trapezium has an area of 315 square centimeters, a height of 15 cm, and the ratio between the lengths of its parallel bases is 3 : 4. What is the length of each base ?

$$\text{The length of the middle base} = \frac{\text{The area}}{\text{height}} = \frac{315}{15} = 21 \text{ cm}$$

First base : Second base : Sum

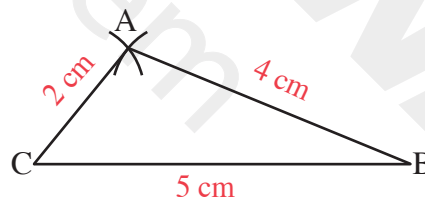
$$\begin{array}{rclcl} 3 & : & 4 & : & 7 \\ & & & & \\ & : & & : & 42 \end{array}$$

$$\text{The value of one part} = 42 \div 7 = 6$$

$$\text{The length of first base} = 3 \times 6 = 18 \text{ cm}$$

$$\text{The length of second base} = 4 \times 6 = 24 \text{ cm}$$

- 4 Draw the triangle ABC where: $AB = 4 \text{ cm}$, $BC = 5 \text{ cm}$ and $AC = 2 \text{ cm}$, and determine the type of the triangle according to the measures of its angles.



Obtuse-angled triangle

- 5 Divide $x^2 - 5x + 6$ by $x - 3$

$$\begin{array}{r} x-2 \\ x-3 \overline{) x^2 - 5x + 6} \\ \underline{-(x^2 - 3x)} \\ -2x + 6 \\ \underline{+ (2x - 6)} \\ 0 \\ 0 \end{array}$$

The quotient is $x - 2$

- 6 Find in the simplest form: $2x(3x - 1) + 3x(x + 2)$, then find the numerical value of the resulting expression when $x = 1$

$$\begin{aligned} & 2x(3x - 1) + 3x(x + 2) \\ &= 6x^2 - 2x + 3x^2 + 6x \\ &= 9x^2 + 4x \end{aligned}$$

The value when $x = 1$ is $9(1)^2 + 4 \times 1 = 9 + 4 = 13$

- 7 Simplify the following:

$$\begin{aligned} & \sqrt[3]{\frac{125}{27}} \times \sqrt{\frac{81}{25}} \times \left(\frac{9}{5}\right)^0 \\ & \frac{5}{3} \times \frac{9}{5} \times 1 = 3 \end{aligned}$$

A Choose the correct answer:

- 1 $0.7 \times 0.004 = \dots\dots\dots$ (2.8×10^3 , 2.8×10^{-2} , 2.8×10^2 , **2.8×10^{-3}**)
- 2 In an experiment of rolling a fair die once, the probability of getting a number more than 3 is $\dots\dots\dots$ (0 , $33\frac{1}{3}\%$, **50%** , 75%)
- 3 A trapezium with area 80 cm^2 and one of its parallel bases of length 4 cm and height 10 cm , then the length of the other base = $\dots\dots\dots$ cm. (6 , **12** , 16 , 20)
- 4 $|\sqrt[3]{-64}| = \dots\dots\dots$ (2 , **4** , 8 , -4)
- 5 If $(x - 3)(x + 3) = x^2 - m$, then $m = \dots\dots\dots$ (**9** , -9 , 6 , -6)
- 6 If the area of square is 200 cm^2 , then the length of its diagonal = $\dots\dots\dots$ cm. (10 , **20** , 15 , 25)
- 7 In the experiment of choosing a digit of the number 9,742 randomly, what is the sample space? ($\{2,4,9\}$, **$\{2, 4, 9, 7\}$** , $\{97,74,42\}$, $\{9742\}$)
- 8 The image of point A($\dots\dots\dots$, $\dots\dots\dots$) is A'(7, -2) by reflection in Y-axis followed by reflection in X-axis . [$(7,0)$, $(-7,-2)$, $(7,2)$, **$(-7, 2)$**]
- 9 The image of the point $(-2,4)$ under rotation $R(O,90^\circ)$ followed by rotation $R(O,180^\circ)$ is $\dots\dots\dots$ [$(-4, 2)$, **$(4, 2)$** , $(-4, -2)$, $(4, -2)$]

B Answer each of the following:

- 1 Find the solution set for the following equation in \mathbb{Z} :

$$4(x^2 - 1) = 3(x^2 + 4)$$

$$4x^2 - 4 = 3x^2 + 12$$

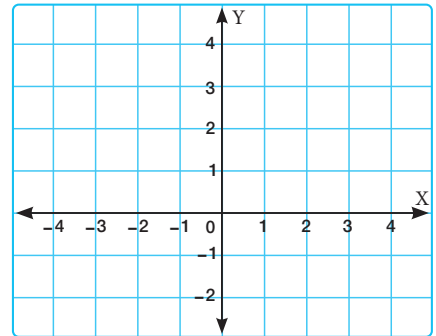
$$4x^2 - 3x^2 = 4 + 12$$

$$x^2 = 16$$

$$x = \pm 4$$

$$\text{S.S.} = \{4, -4\}$$

- 2 Draw $\triangle ABC$ where: A (3, 4), B (4, 1) and C (0, 1), then draw its image by the translation $(x, y) \rightarrow (x - 4, y - 2)$.

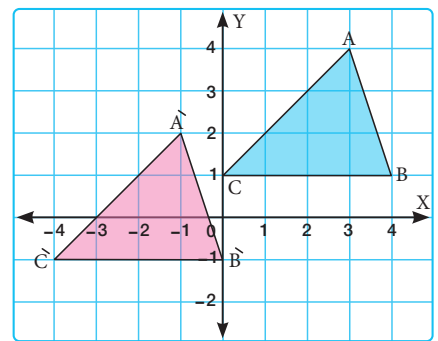


by the translation $(x, y) \rightarrow (x - 4, y - 2)$,

$$A(3, 4) \rightarrow A'(-1, 2)$$

$$B(4, 1) \rightarrow B'(0, -1)$$

$$C(0, 1) \rightarrow C'(-4, -1)$$



Then $\triangle A'B'C'$ is the image of $\triangle ABC$ by translation $(x, y) \rightarrow (x - 4, y - 2)$.

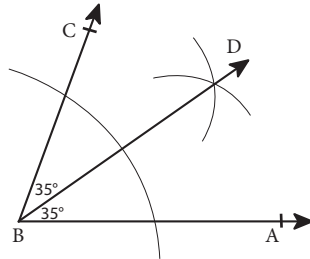
- 3 A fair coin was tossed twice consecutively, and the sequence of heads and tails was observed. Find the probability of each of the following events:
- a) The event of getting two heads.
 - b) The event of getting at least one head.

Sample space = {HH, HT, TH, TT}

a) $\frac{1}{4}$

b) $\frac{3}{4}$

- 4 Draw $\angle ABC$ of measure 70° , then bisect it using a ruler and compass.



- 5 Find the value of x in the equation:

$$8x^3 + 15 = -49$$

$$8x^3 = -49 - 15$$

$$8x^3 = -64$$

$$x^3 = -8$$

$$x = -2$$

- 6 Find the quotient of:

$$\frac{18x^3 + 12x^2 - 6x}{-6x}$$

$$\frac{18x^3 + 12x^2 - 6x}{-6x} = \frac{18x^3}{-6x} + \frac{12x^2}{-6x} - \frac{6x}{-6x} = -3x^2 - 2x + 1$$

- 7 Find the diagonal length of the square whose area is equal to the area of a rhombus with diagonal lengths of 4 meters and 25 meters.

$$\begin{aligned} \text{The area of the rhombus} &= \frac{1}{2} \times d_1 \times d_2 \\ &= \frac{1}{2} \times 25 \times 4 = 50 \text{ m}^2 \end{aligned}$$

$$\begin{aligned} \text{The area of the square} &= \frac{1}{2} \times d^2 \\ 50 &= \frac{1}{2} \times d^2 \\ d^2 &= 100 \\ d &= 10 \text{ m} \end{aligned}$$

Diagonal length of the square = 10 m

A Choose the correct answer:

- 1 The rotation $R(O, 180^\circ)$ followed by rotation $R(O, 180^\circ)$ is equivalent to the rotation
[$R(O, 180^\circ)$, $R(O, 90^\circ)$, **$R(O, 360^\circ)$** , $R(O, 270^\circ)$]
- 2 $(-3)^2 = \dots\dots\dots$ (**9**, -9, 6, -6)
- 3 In the experiment of forming a two-digit number consists of different digits from the set of digits {1, 3, 4}, how many elements are in the event that expresses the resulting number is odd? (2, 3, **4**, 6)
- 4 If $x = \sqrt{\frac{1}{9}}$, then $x^3 = \dots\dots\dots$ ($\frac{1}{3}$, $\frac{1}{9}$, **$\frac{1}{27}$** , $\frac{1}{81}$)
- 5 $84 \times 10^{-8} = m \times 10^{-7}$, then $m = \dots\dots\dots$ (84, **8.4**, 0.84, 840)
- 6 If the edge length of a cube is $3a$, then the volume of the cube =
($9a^2$, **$27a^3$** , $3a^3$, $9a^3$)
- 7 $(x^3 + x^2) \div x^2 = \dots\dots\dots$ (0, x , **$x + 1$** , $2x + 1$)
- 8 A trapezium with an area 100 cm^2 , and a middle base length 8 cm, then its height = cm. (8, 10, 12, **12.5**)
- 9 The image of the point (0, 8) by the translation $(x, y) \rightarrow (x - 3, y - 4)$ is
[(-1, 5), **(-3, 4)**, (5, 3), (-1, 3)]

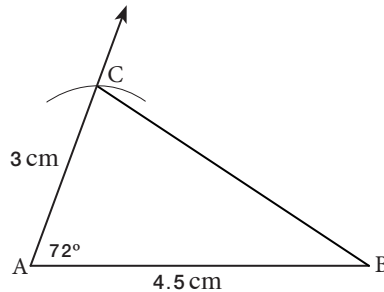
B Answer each of the following:

- 1 Write the sample space of the random experiment of drawing a card from a set of identical cards numbered from 20 to 25 and observing the number written on the drawn card.

$$S = \{20, 21, 22, 23, 24, 25\}$$

$$n(S) = 6$$

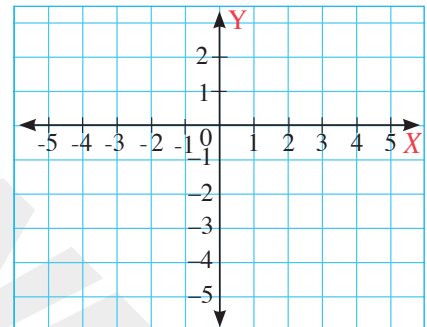
- 2 Draw the triangle ABC where $AB = 4.5$ cm, $AC = 3$ cm and $m(\angle A) = 72^\circ$



- 3 A cuboid has a volume of $(12x^2y + 20xy^2)$ cubic units and a base area of $(4xy)$ square units. Find its height in terms of x and y .

$$\text{The height} = \frac{\text{The volume}}{\text{base area}} = \frac{12x^2y + 20xy^2}{4xy} = (3x + 5y) \text{ units}$$

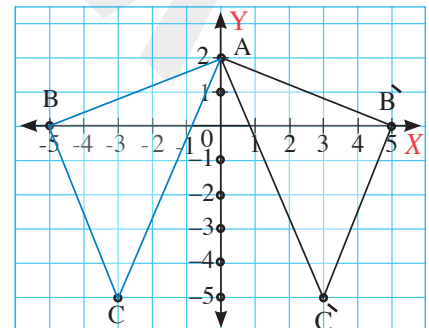
- 4 Draw $\triangle ABC$ where: $A(0, 2)$, $B(-5, 0)$ and $C(-3, -5)$, then draw the image of $\triangle ABC$ by a reflection in the y -axis.



$$A(0, 2) \rightarrow A(0, 2) \text{ (the same)}$$

$$B(-5, 0) \rightarrow B'(5, 0)$$

$$C(-3, -5) \rightarrow C'(3, -5)$$



Then $\triangle A'B'C'$ is the image of $\triangle ABC$ by reflection in the Y -axis

- 5 What is the solution set of the inequality $3x - 2 \leq 10$ in \mathbb{N} ?

$$3x - 2 \leq 10$$

$$3x \leq 12$$

$$x \leq 4$$

$$S.S = \{0, 1, 2, 3, 4\}$$

- 6 Which has a greater area?

A rhombus with diagonal lengths 12 cm and 10 cm or a rectangle with a length of 8 cm and width of 7 cm.

$$\begin{aligned}\text{The area of the rhombus} &= \frac{1}{2} \times d_1 \times d_2 \\ &= \frac{1}{2} \times 12 \times 10 = 60 \text{ cm}^2\end{aligned}$$

$$\begin{aligned}\text{The area of the rectangle} &= \text{length} \times \text{width} \\ &= 8 \times 7 = 56 \text{ cm}^2\end{aligned}$$

The area of the rhombus is greater.

- 7 Simplify the following:

$$\left(\frac{3}{2}\right)^2 + \sqrt{\frac{25}{4}} + \sqrt[3]{\frac{125}{64}}$$

$$\begin{aligned}\frac{9}{4} + \frac{5}{2} + \frac{5}{4} &= \frac{9}{4} + \frac{5}{4} + \frac{5}{4} \\ &= \frac{14}{4} + \frac{5}{4} \\ &= \frac{14}{4} + \frac{10}{4} \\ &= \frac{24}{4} \\ &= 6\end{aligned}$$

A Choose the correct answer:

- 1 The area of a rhombus with diagonal lengths 8 cm and 6 cm The area of a square with diagonal length 7 cm. ($>$, $<$, $=$, otherwise)
- 2 If $\frac{x-2}{2-x} = a$, then $a =$ (-2 , -1 , 1 , 2)
- 3 $x(x+1) - x =$ ($2x^2$, x^2 , $x^2 - x$, $x^2 + x$)
- 4 The quarter of 2^{20} is (2^5 , 2^{10} , 2^{19} , 2^{18})
- 5 If $x^3 = -1000$, then $x =$ (-10 , 10 , ± 10 , 100)
- 6 $\sqrt[3]{25 - \dots} = 2$ (16 , 9 , 17 , 15)
- 7 If $(x-2)(x+3) = x^2 + ax + b$, then $a + b =$ (5 , -5 , 4 , -4)
- 8 The image of the point (4, 5) by reflection in the y-axis followed by reflection in the X- axis is [(4,5) , (-4, -5) , (-4,5) , (4,-5)]
- 9 In an experiment of rolling a fair die and observing the upper face, the probability of rolling a number that is not equal to 2 is ($\frac{1}{6}$, $\frac{2}{3}$, $\frac{5}{6}$, $\frac{1}{3}$)

B Answer each of the following:

- 1 In the experiment of tossing a fair coin two consecutive times and observing the sequence of heads and tails that appears.

Write the sample space indicating the number of its elements.

$$S = \{(H, H) , (H, T) , (T, H) , (T, T)\}$$

$$n(S) = 4$$

- 2 Find the result of: $\frac{(-5)^4 \times 5^2 \times (-5)^3}{(-5)^6 \times (-5)^5}$

$$= \frac{5^4 \times 5^2 \times (-5)^3}{5^6 \times (-5)^5} = \frac{-5^9}{-5^{11}} = \frac{1}{5^2} = \frac{1}{25}$$

- 3 Find the solution set in \mathbb{Q} for the inequality:

$$2 - 4(x + 2) \geq x + 9$$

$$2 - 4(x + 2) \geq x + 9$$

$$2 - 4x - 8 \geq x + 9$$

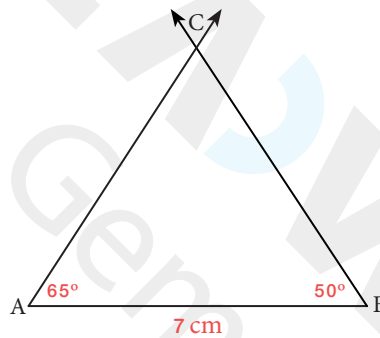
$$-4x - 6 \geq x + 9$$

$$-5x \geq 15$$

$$x \leq -3$$

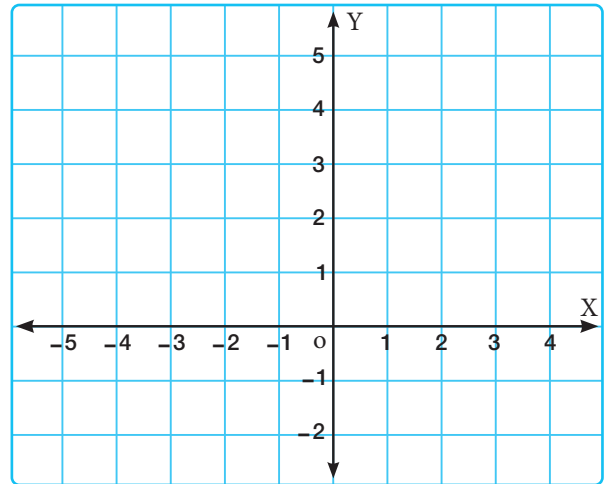
Solution set is $\{x: x \in \mathbb{Q}, x \leq -3\}$

- 4 Draw the triangle ABC where: $AB = 7$ cm, $m(\angle A) = 65^\circ$ and $m(\angle B) = 50^\circ$, then determine the type of the triangle according to the lengths of its sides.



$\triangle ABC$ is an isosceles triangle.

- 5 Draw $\triangle ABC$ where: A $(-2, 5)$, B $(1, 2)$ and C $(4, 4)$, then draw its image under rotation $R(O, 90^\circ)$

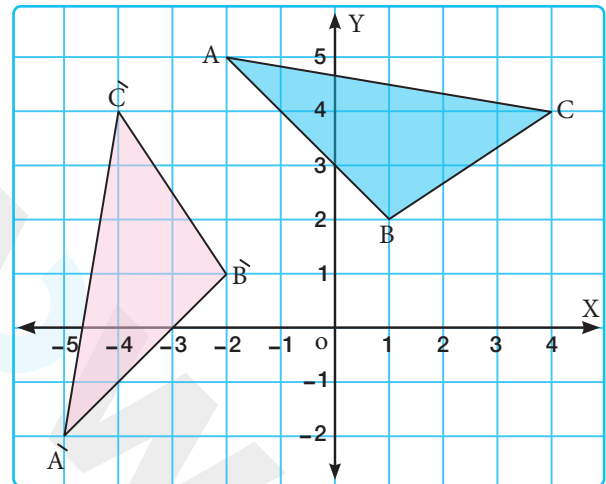


$$A(-2, 5) \rightarrow A'(-5, -2)$$

$$B(1, 2) \rightarrow B'(-2, 1)$$

$$C(4, 4) \rightarrow C'(-4, 4)$$

Then $\triangle A'B'C'$ is the image of $\triangle ABC$ under rotation $R(O, 90^\circ)$



- 6 A bag contains 40 identical marbles. Hani draw randomly a marble and found that it is red. If the probability of drawing a red marble is $\frac{3}{5}$, then find the number of red marbles in the bag.

$$\text{The number of red marbles in the bag} = \frac{3}{5} \times 40 = 24 \text{ marbles}$$

- 7 Find the product of:

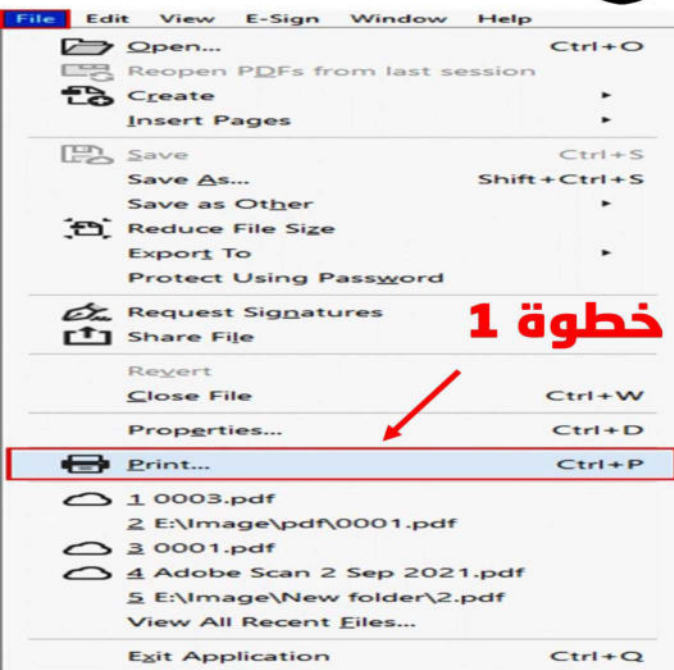
a) $(m + 4n)(2m - n)$

b) $(\frac{1}{2}x + 1)(\frac{1}{2}x - 1)$

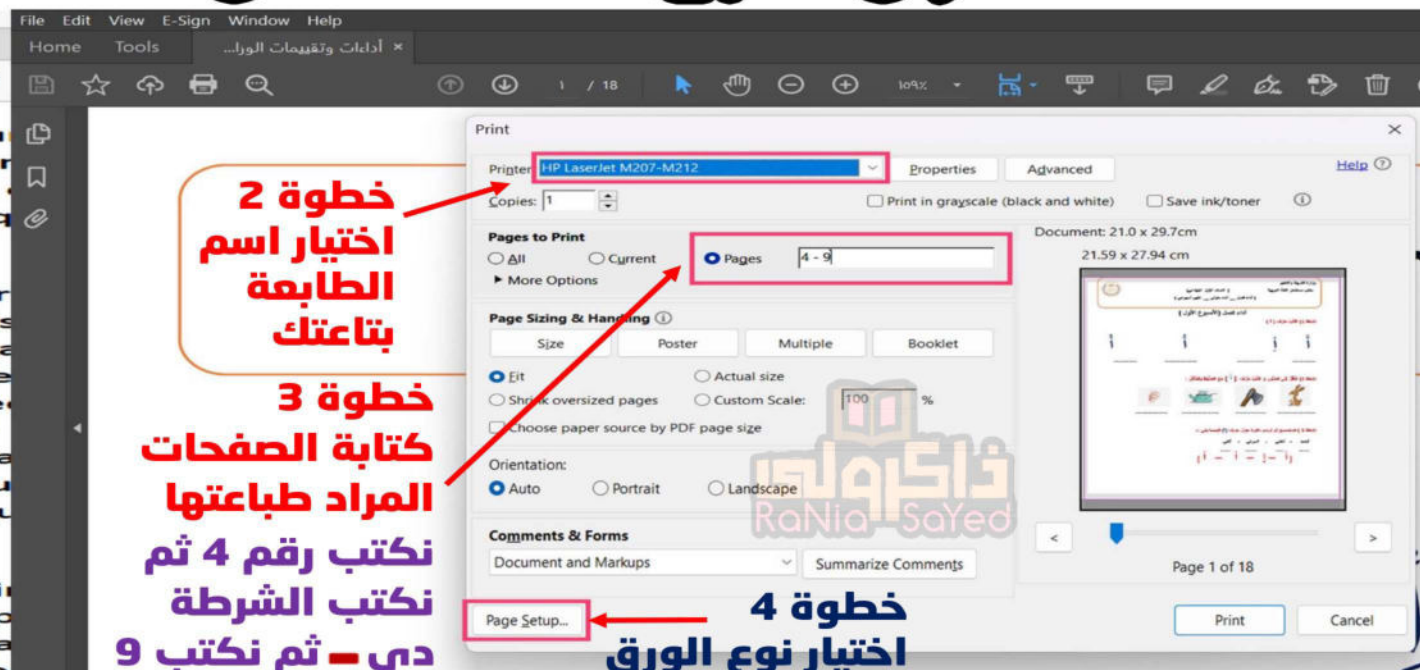
a) $2m^2 + 7mn - 4n^2$

b) $\frac{1}{4}x^2 - 1$

كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



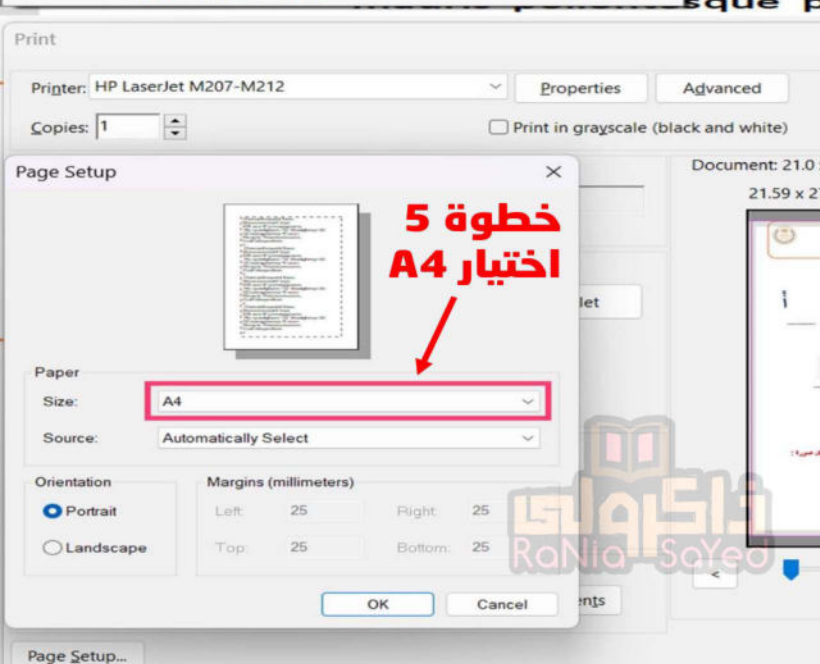
خطوة 1



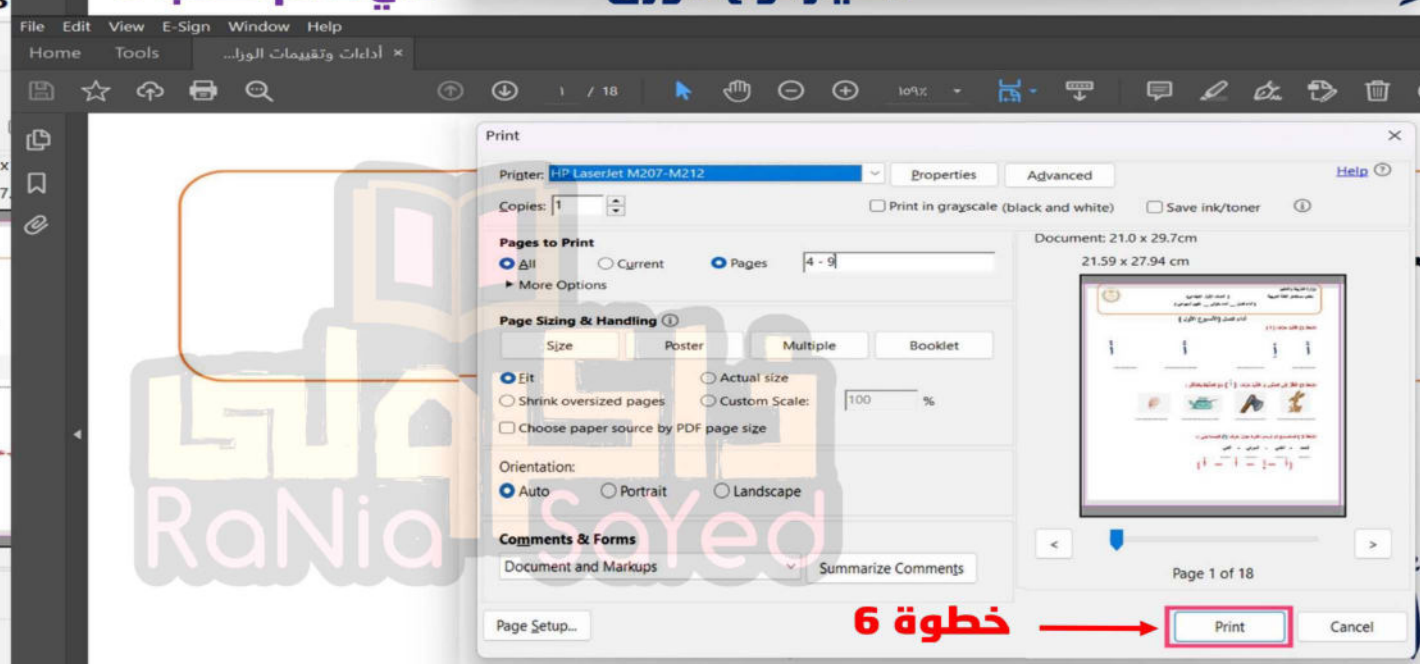
خطوة 2
اختيار اسم
الطابعة
بتاعتك

خطوة 3
كتابة الصفحات
المراد طباعتها
نكتب رقم 4 ثم
نكتب الشرطة
دي - ثم نكتب 9

خطوة 4
اختيار نوع الورق



خطوة 5
اختيار A4



خطوة 6

حمل الآن

مجانا وحصريا

امتحانات رقم (2)

الترم الثاني





First Group of Questions

► Choose the correct answer from the given ones :

- 1 In the experiment of tossing a fair coin two consecutive times , what is the number of times of appearance of one head at least ?
 (a) 1 (b) 2 (c) 3 (d) 4
- 2 $\frac{1}{4}$ of the number 4^8 is
 (a) 4^2 (b) 4^4 (c) 4^6 (d) 4^7
- 3 A trapezium with a height of 5.4 cm and the lengths of its parallel bases are 8 cm and 10 cm , has an area of square centimeters.
 (a) 48.6 (b) 54 (c) 97.2 (d) 432
- 4 If $7.5 \times 10^n = 0.000075$, what is the value of n ?
 (a) -5 (b) -4 (c) 4 (d) 5
- 5 $(x^3 + x^2 + x) \div x = \dots\dots\dots$
 (a) $x^3 + x^2$ (b) $x^2 + x$ (c) $x^2 + x + 1$ (d) 0
- 6 What is the image of the point (3 , 4) by translation $(x , y) \longrightarrow (x - 4 , y - 2)$?
 (a) (2 , 1) (b) (1 , -2) (c) (-1 , 2) (d) (-1 , -2)
- 7 If $x^3 + 124 = -1$, what is the value of x ?
 (a) -5 (b) -4 (c) 4 (d) 5
- 8 What is the image of the point (-2 , 4) by reflection in the X-axis ?
 (a) (-2 , -4) (b) (2 , 4) (c) (-4 , 2) (d) (4 , 2)
- 9 A rhombus with diagonal lengths of 10 cm and 15 cm has an area of square centimeters.
 (a) 37.5 (b) 75 (c) 150 (d) 300

Second Group of Questions

► Answer the following questions :

- 1 Draw a line segment of length 4.5 cm , then bisect it using a ruler and compass.
- 2 Simplify to its simplest form : $\left(\frac{14}{15}\right)^0 - \sqrt{\frac{9}{25}} + \sqrt[3]{\frac{64}{125}}$
- 3 If the quotient of the expression : $(x^3 - 25x)$ divided by $(x + 5)$ is $x^2 + a x$, what is the value of a ?
- 4 Simplify the expression : $(4n - 3)^2 - (4n - 3)(4n + 3)$ to its simplest form , then find the numerical value of the expression when $n = -1$
- 5 Draw on the grid , the rectangle ABCD where A (1 , 1) , B (3 , 1) , C (3 , 6) , D (1 , 6) , then find its image by rotation R (O , 90°)
- 6 What is the solution set of the inequality $3x - 2 \leq 4$ in \mathbb{N} ?
- 7 In an experiment of rolling a fair die once , what is the probability of obtaining :
(A) a number greater than 2 ?
(B) a prime number less than 4 ?

Final exam models



Model 1

First Group

► Choose the correct answer from the given ones :

- 1 Which of the following is the additive inverse of the number 5^{-2} ?
(a) $(-5)^2$ (b) $(-5)^{-2}$ (c) -5^{-2} (d) 5^{-2}
- 2 What is the image of the point $(3, -4)$ by rotation $R(O, 90^\circ)$?
(a) $(4, -3)$ (b) $(4, 3)$ (c) $(3, 4)$ (d) $(-3, -4)$
- 3 Which of the following is equal to $\sqrt{16x^2}$?
(a) $16x$ (b) $4x^2$ (c) $4x$ (d) $4|x|$
- 4 $\frac{a+b}{c} = \dots\dots\dots$
(a) $\frac{a}{c} + \frac{b}{c}$ (b) $a + \frac{b}{c}$ (c) $\frac{a}{c} + b$ (d) $\frac{ab}{c}$
- 5 In an experiment of rolling a fair die once, what is the probability of obtaining an even number ?
(a) $\frac{1}{4}$ (b) $\frac{1}{3}$ (c) $\frac{1}{2}$ (d) $\frac{1}{6}$
- 6 If the length of one diagonal of a square is 6 inches, what is the area of the square in square inches ?
(a) 36 (b) 18 (c) 24 (d) 9
- 7 $(5x)(-2x^2) = \dots\dots\dots$
(a) $10x^3$ (b) $3x^3$ (c) $-10x^3$ (d) $-10x^2$
- 8 What is the image of the point $(1, 1)$ when moving 4 units downwards followed by moving 3 units to the right ?
(a) $(4, -3)$ (b) $(4, 5)$ (c) $(-2, -3)$ (d) $(-4, -3)$
- 9 Which of the following numbers is written in scientific notation ?
(a) 15×10^{-3} (b) -3.4×10^8 (c) $1.2 \times 10^{2.5}$ (d) -0.1×10^{10}

Second Group

► Answer the following questions :

- 1 A card is drawn randomly from identical numbered cards carrying numbers from 4 to 13. Determine the probability that the drawn card carries:
(a) an odd number. (b) an even number greater than 9

- 2 Find the solution set for the inequality : $4x + 3 \geq 3x - 2$ in \mathbb{Z}
- 3 Draw an angle of measure 130° , then bisect it using a ruler and compass verify it by measuring.
- 4 Draw the triangle ABC where A $(-2, 2)$, B $(1, 0)$, and C $(1, 2)$, then draw its image by reflection in the X-axis followed by reflection in the y-axis
- 5 Write the result in scientific notation : $(5 \times 10^4) \div (2.5 \times 10^{-3})$
- 6 If the expression $(x^3 + 2x^2 + 3x + m)$ is divisible by $(x + 1)$, find the value of m.
- 7 Which is greater in area ?
A rhombus of diagonals lengths of 10 cm and 8 cm or a rectangle its length 9 cm and its width 5 cm.

Model 2

First Group

► Choose the correct answer from the given ones :

- 1 A rhombus of diagonals lengths 7 cm and 8 cm has an area of square centimeters.
(a) 56 (b) 28 (c) 14 (d) 30
- 2 If $3^4 \times a = 3^{12}$, then what is the value of a?
(a) 1^8 (b) 1^3 (c) 3^8 (d) 3^3
- 3 $x(x + 2) = \dots\dots\dots$
(a) $2x + x^3$ (b) $x^2 + 2$ (c) $2x + 2$ (d) $x^2 + 2x$
- 4 What is the point that if it is reflected in the X-axis its image becomes $(3, 0)$?
(a) $(0, 3)$ (b) $(3, 0)$ (c) $(-3, 0)$ (d) $(0, -3)$
- 5 Which of the following equals $\sqrt[3]{(-8)^2}$?
(a) -4 (b) -2 (c) 2 (d) 4
- 6 $\div (-4ab) = 3ab$
(a) $-\frac{4}{3}$ (b) $-ab$ (c) $-12a^2b^2$ (d) -12
- 7 In the experiment of tossing a fair coin once and observing the upper face , what is the probability of obtaining a head (H)?
(a) 1 (b) $\frac{1}{2}$ (c) $\frac{1}{4}$ (d) zero
- 8 Which of the following expresses the number 7 million in scientific notation?
(a) 7×10^{-7} (b) 7×10^7 (c) 7×10^{-6} (d) 7×10^6

- 9 What is the image of the point $(5, -3)$ by moving 3 units to the left?

(a) $(5, 0)$ (b) $(2, -3)$ (c) $(5, -6)$ (d) $(8, -3)$

Second Group

► Answer the following questions :

- 1 Find the area of the trapezium, the lengths of its parallel bases are 7 inches and 9 inches, and its height of 10 inches.
- 2 A bag contains 40 identical marbles. Hani draws randomly a marble and finds that it is red. If the probability of drawing a red marble is $\frac{3}{5}$, then find the number of red marbles in the bag.
- 3 Simplify to its simplest form : $(x + 1)^2 - x(x + 2)$
- 4 Draw the line segment \overline{AB} of length 7 cm, then bisect it using a ruler and compass at point C, illustrating the steps of the solution. Verify by using ruler that C is the midpoint of \overline{AB}
- 5 A cuboid has a volume of $(12x^2y + 20xy^2)$ cubic units and a base area of $(4xy)$ square units. Find its height in terms of x and y
- 6 Find the solution set for the following equation in \mathbb{Z} : $2x^2 + 1 = 33$
- 7 Draw the rectangle ABCD where A $(1, 1)$, B $(3, 1)$, C $(3, 4)$, and D $(1, 4)$, then draw its image by rotation $R(O, -90^\circ)$

Model 3

First Group

► Choose the correct answer from the given ones :

- 1 What is the image of the point $(4, -1)$ by reflection in the y-axis?
- (a) $(-1, 4)$ (b) $(4, 1)$ (c) $(-4, -1)$ (d) $(-1, -4)$
- 2 $36x^2y^3 \div (-4xy^2) = \dots\dots\dots$
- (a) $9xy$ (b) -9 (c) $-9x^2y$ (d) $-9xy$
- 3 If $4^{-2} \times a = 1$, then what is the value of a ?
- (a) $\frac{1}{16}$ (b) $(-2)^{-4}$ (c) 4^{-2} (d) 16
- 4 If the probability of a student success is 85%, what is the probability of his failure?
- (a) 100 (b) 0.15 (c) 0.85 (d) $\frac{3}{10}$

- 5 If the dimensions of a rectangle are 3 y and 5 y units , then what is its area?
 (a) 16 y (b) $15 y^2$ (c) $8 y^2$ (d) 8 y
- 6 If $2x - 1 \leq 9$, then which of the following could be the value of x ?
 (a) 8 (b) 7 (c) 6 (d) 5
- 7 If $42 \times 10^{-7} = k \times 10^{-6}$, then what is the value of k?
 (a) 10 (b) 420 (c) 4.2 (d) 0.42
- 8 The probability of a certain event =
 (a) 1 (b) zero (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$
- 9 What is the multiplicative inverse of the number $\sqrt{\frac{49}{64}}$ in its simplest form?
 (a) $-\frac{7}{8}$ (b) $\frac{7}{8}$ (c) $-\frac{8}{7}$ (d) $\frac{8}{7}$

Second Group

► Answer the following questions :

- 1 Draw $\triangle ABC$ where A (0 , 2) , B (4 , 1) , and C (3 , 4) , then draw its image by rotation R (O , -180°) followed by rotation R (O , 90°)
- 2 A square has a diagonal length of $(4x + 3)$ units. Calculate its area in terms of x
- 3 Find the quotient of $(15 - 7x^2 + 3x - 4x^3)$ divided by $(5 - 4x)$
- 4 Simplify to its simplest form: $\sqrt[3]{-\frac{125}{64}} \times \sqrt{\frac{16}{25}} + \left(\frac{4}{5}\right)^0$
- 5 Draw an equilateral triangle ABC with a side length of 5 cm.
- 6 Find the solution set of the following inequality in \mathbb{Q} : $5 - 3x < 2(x + 1)$
- 7 The stem-and-leaf plot below illustrates the number of hours that 20 students spend studying weekly. If one student is selected at random , what is the probability that the selected student :
 (a) spends more than 32 hours studying ?
 (b) spends less than 23 hours studying ?

Stem	Leaves				
0	1	4	5	6	8
1	0	0	1	1	1
2	0	1	2	2	3
3	0	1	3	4	5
Key	1 1 means 11				

Model 4**First Group**

► Choose the correct answer from the given ones :

- 1 If $\sqrt[3]{X} = 4$, then what is the value of X ?
(a) 2 (b) -2 (c) 16 (d) 8
- 2 The probability of the impossible event =
(a) $\frac{3}{5}$ (b) 1 (c) \emptyset (d) zero
- 3 What is the image of the origin O by reflection in the X -axis followed by reflection in the y -axis ?
(a) (1, 1) (b) (0, 0) (c) (1, 0) (d) (0, 1)
- 4 Which of the following equals $(-3)^3$?
(a) -9 (b) 9 (c) 1 (d) -27
- 5 If $\frac{5X^3}{b} = 5$, then what is the value of b ?
(a) 5 (b) $5X^3$ (c) X^3 (d) $4X^3$
- 6 Which of the following equals 0.0000025 ?
(a) 2.5×10^{-5} (b) 2.5×10^{-6} (c) 2.5×10^5 (d) 2.5×10^6
- 7 Which of the following inequalities represents the following situation :
"The maximum speed of your car is 80 km/h" ?
(a) $X \leq 80$ (b) $X < 80$ (c) $X \geq 80$ (d) $X > 80$
- 8 If $(X + 3)(X + 4) = aX^2 + bX + c$, then what is the value of b ?
(a) $-7X$ (b) 12 (c) $7X$ (d) 7
- 9 The length of the middle base of a trapezium is 18 inches and its height is 5 inches, then its area = square inches.
(a) 90 (b) 45 (c) 23 (d) 46

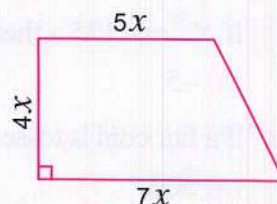
Second Group

► Answer the following questions :

- 1 A cube with a volume of 512 cubic centimetres, what is the length of its edge ?
- 2 Simplify to its simplest form : $3X(X^2 - 3X - 2) + X(4X - 3)$

- 3 Find the area of the trapezium in terms of x

Then find the numerical value of the area when $x = 2$



- 4 Find the simplest form of : $\frac{x^{-6} \times x^{-2}}{x^{-3} \times x^{-4}}$

- 5 A fair coin was tossed twice consecutively and the sequence of heads and tails was observed. Determine the probability of each of the following events:

(a) Event (A) is the event of getting two heads.

(b) Event (B) is the event of getting at least one head.

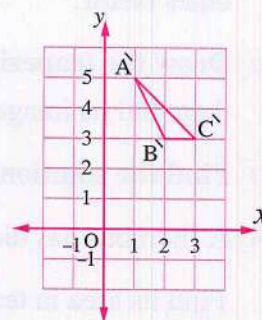
- 6 Draw the triangle XYZ in which $XY = 6.5 \text{ cm}$, $m(\angle X) = 90^\circ$, $m(\angle Y) = 45^\circ$ and determine the type of triangle according to the lengths of its sides by measuring.

- 7 In the opposite figure :

If $\triangle \hat{A}\hat{B}\hat{C}$ is the image of $\triangle ABC$

by translation $(x, y) \longrightarrow (x + 3, y + 4)$

draw $\triangle ABC$



Model 5

First Group

- Choose the correct answer from the given ones :

- 1 If $3.4 \times 10^n = 0.00034$, then what is the value of n ?

(a) -4

(b) -3

(c) 3

(d) 4

- 2 A trapezium with parallel bases of length 16 feet and 12 feet, the length of its middle base is equal to feet.

(a) 192

(b) 96

(c) 28

(d) 14

- 3 $(x^2 + x) \div x = \dots\dots\dots$

(a) $x^3 + x^2$

(b) x

(c) $x + 1$

(d) $2x$

- 4 Which of the following inequalities has one of its solutions $x = -1$ in \mathbb{Z} ?

(a) $x - 1 > 0$

(b) $x > -1$

(c) $-x \leq 1$

(d) $2x \leq -6$

- 5 $3a^0 - (3a)^0 = \dots\dots\dots$

(a) 0

(b) 2

(c) 3

(d) 6

- 6 What is the image of the point $(2, -3)$ by translation 3 units upwards?

(a) $(5, -3)$

(b) $(5, -6)$

(c) $(2, 0)$

(d) $(5, 0)$

- 7 If $x^3 = -125$, then what is the value of x ?
 (a) -5 (b) 5 (c) ± 5 (d) -25
- 8 If a fair coin is tossed 300 times, the closest number of times that heads will appear is
 (a) 300 (b) 200 (c) 147 (d) 100
- 9 If $(2x + 5)^2 = ax^2 + bx + c$, then what is the value of c ?
 (a) c (b) 20 (c) 25 (d) $20x$

Second Group

► Answer the following questions :

- 1 If $(x + 2)$ is one of the factors of the expression $(x^3 + 6x^2 + 11x + 6)$, then find the other factor.
- 2 Draw the trapezium ABCD where A $(-1, 4)$, B $(-5, 4)$, C $(-4, 2)$, D $(-2, 2)$ and then find its image by reflection in the y-axis.
- 3 Find the solution set in \mathbb{Z} : $8x^3 + 20 = -7$
- 4 A rhombus has diagonals of lengths $(3x + 6)$ meters and $(x + 1)$ meters.
 Find its area in terms of x , and then find the numerical value of the area when $x = 1$
- 5 Simplify to its simplest form : $(x + 2y)(x - 2y) + (x + y)^2$
- 6 The following table shows the amounts saved by 20 students, in LE, within a week :

Intervals	-0	-30	-60	-90
Frequency	5	3	8	4

- (a) What is the experimental probability of saving amount from 30 LE to less than 90 LE ?
 (b) What is the experimental probability of saving 60 LE or more ?
- 7 Draw $\triangle ABC$, the length of \overline{AB} is 6 cm, the length of \overline{AC} is 5 cm, and $m(\angle A) = 70^\circ$
 Determine the type of the triangle according to the measures of its angles.

Model 6

First Group

► Choose the correct answer from the given ones :

- 1 If $a + b = 4$, and $a - b = 3$, then what is the value of $a^2 - b^2$?
 (a) 7 (b) 12 (c) 1 (d) -1

- 2 What is the standard form of the number -3.2×10^4 ?
 (a) $-32\ 000$ (b) -0.00032 (c) $-320\ 000$ (d) -0.00032
- 3 Selecting a ball from a basket containing 4 identical balls, all are red is
 (a) a random experiment. (b) not a random experiment.
 (c) an impossible event. (d) a simple event.
- 4 What is the image of the point $(-2, 1)$ by rotation $R(O, 180^\circ)$?
 (a) $(2, 1)$ (b) $(1, 2)$ (c) $(-1, -2)$ (d) $(2, -1)$
- 5 If $(5x^2 + 15x) \div (-5x) = ax - 3$, then what is the value of a ?
 (a) $-x$ (b) -1 (c) 1 (d) x
- 6 Which of the following equals $2 \times 2 \times 2 \times 2 \times 2$?
 (a) 2×5 (b) 5^2 (c) 2^5 (d) $2 + 5$
- 7 $(2ab)(2a + 2b) = \dots\dots\dots$
 (a) $4a^2b + 4ab^2$ (b) $4a^2b^2$
 (c) $4ab^2$ (d) $2ab^2 + 2a^2b$
- 8 If the area of a square is 50 square meters, then the length of its diagonal is meters.
 (a) 100 (b) 10 (c) 25 (d) 5
- 9 If $-\sqrt[3]{4} = \sqrt[3]{a}$, then what is the value of a ?
 (a) -2 (b) 4 (c) 8 (d) -8

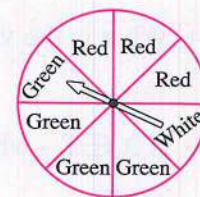
Second Group

► Answer the following questions :

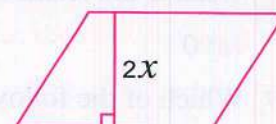
- 1 Draw the triangle XYZ in which $XZ = YZ = 5$ cm, and $XY = 6$ cm, then bisect angles $\angle Y$ and $\angle X$ with two bisectors intersecting at point M. Is $MX = MY$?

- 2 The opposite shape represents a spinning disc game. Find :

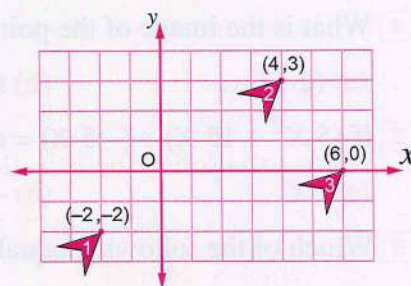
- (a) The probability that the pointer stops at the colour:
 ① Red. ② Green.
 (b) The probability that the pointer does not stop at the colour red.



- 3 The area of the opposite parallelogram is $(2x^3 + 4x^2 + 10x)$ square units, and its height is $(2x)$ length units. Find the length of the base of the parallelogram corresponding to this height in terms of x



- 4 Simplify to the simplest form: $\sqrt{\frac{9}{4}} + \sqrt[3]{\frac{-27}{8}} + \left(\frac{4}{9}\right)^0$
- 5 A square piece of agricultural land with a diagonal length of 8 kilometers. Find its area.
- 6 Simplify to the simplest form: $(2x - 5)(2x + 5) + 25$, then find the numerical value of the result when $x = 2$
- 7 The opposite graph represents the movement of one shape in different positions with the coordinates of the position.
- (a) Find the translation that makes shape 2 the image of shape 1.
- (b) Find the translation that makes shape 3 the image of shape 1.



Model 7

First Group

► Choose the correct answer from the given ones :

- 1 $\div (9x^2y) = 3xy^2$
- (a) $3xy^2$ (b) $3xy$ (c) $27x^3y^3$ (d) $27xy$
- 2 Which of the following numbers is not in scientific notation ?
- (a) 1.54×10^{-2} (b) -1.54×10^2 (c) 1.54×10^{-3} (d) -15.4×10^3
- 3 A rhombus has one diagonal of length 10 cm and an area of 40 square centimeters, thus the length of the other diagonal equals cm.
- (a) 4 (b) 6 (c) 8 (d) 16
- 4 What is the value of $\sqrt[3]{\sqrt{64}}$?
- (a) 2 (b) 4 (c) 8 (d) 64
- 5 If $x \in \mathbb{Z}$, which of the following is a solution to the inequality: $1 - 2x < 3$?
- (a) 0 (b) -1 (c) -2 (d) -4
- 6 What is the result of subtracting $(a - b)^2$ from $(a + b)^2$?
- (a) 0 (b) $2ab$ (c) $-4ab$ (d) $4ab$
- 7 Which of the following equals -4^2 ?
- (a) 16 (b) -16 (c) 8 (d) -8

- 8 A card carrying a letter from the name (Fatima) is drawn randomly , what is the probability that the letter is (m)?

(a) $\frac{1}{4}$ (b) $\frac{2}{3}$ (c) $\frac{1}{5}$ (d) $\frac{1}{6}$

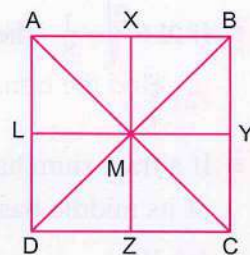
- 9 What is the image of the point (a , b) by translation $(x, y) \longrightarrow (x + 2, y - 3)$?

(a) (a - 3 , b + 2) (b) (a + 2 , b - 3)
(c) (2 , - 3) (d) (a + 2 , b + 3)

Second Group

- Answer the following questions :

- 1 Find the image of the square BYMX
by rotation R (M , 90°)
followed by rotation R (M , 90°).



- 2 Draw the triangle LMN where LM = 3 cm , $m(\angle L) = 90^\circ$, and $m(\angle M) = 30^\circ$.
Find the length of \overline{MN} .

- 3 Find the quotient of : $(x^3 + x + 10)$ divided by $(x + 2)$.

- 4 Find the solution set for the inequality in \mathbb{Z} : $2(x + 5) - 3 < 12$

- 5 Arrange the following numbers in an ascending order :

7×10^5 , 7.8×10^8 , 1.1×10^8 , 54×10^4

- 6 A trapezium has an area of 63 square feet and the lengths of its parallel bases are 10 feet and 8 feet. Calculate its height.

- 7 A bag contains one red ball , 6 blue balls , and 3 green balls , all balls are identical.

If a ball is drawn randomly from the bag and its colour is observed , find the probability that the drawn ball is :

(a) blue (b) red (c) blue or green

Model 8

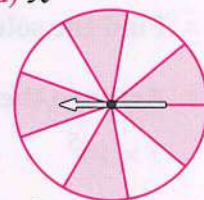
First Group

- Choose the correct answer from the given ones :

- 1 Which of the following is the largest number ?

(a) 16×10^{-6} (b) 1.5×10^{-5} (c) 0.8×10^{-5} (d) 14×10^{-4}

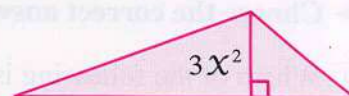
- 2 If $(x + 1)(x - 1) = x^2 + a$, then what is the value of a ?
 (a) 1 (b) -1 (c) zero (d) x^2
- 3 If the area of a rhombus is 40 square units, then what is the product of the lengths of its diagonals ?
 (a) 20 (b) 40 (c) 80 (d) 120
- 4 What is the point that whose image by rotation $R(O, -90^\circ)$ is $(2, 1)$?
 (a) $(1, -2)$ (b) $(1, 2)$ (c) $(-1, 2)$ (d) $(-1, -2)$
- 5 If $x = \sqrt[3]{-\frac{1}{8}}$, then what is the value of x^2 ?
 (a) $\frac{1}{4}$ (b) $-\frac{1}{2}$ (c) $\frac{1}{8}$ (d) $-\frac{1}{4}$
- 6 If a trapezium has an area of 100 square meters and its height is 5 meters, then the length of its middle base is equal to meters.
 (a) 10 (b) 20 (c) 95 (d) 15
- 7 If the area of a square is $(16x^4)$ square units, what is the length of its side in terms of x ?
 (a) $4x$ (b) $16x^2$ (c) $4x^2$ (d) $8x^2$
- 8 Which of the following is equal to $x^{-2} \times x^4$?
 (a) x^{-6} (b) x^6 (c) x^{-2} (d) x^2
- 9 Hamza has a spinning game divided into 9 equal sectors, as shown in the opposite figure. When it spins, the pointer randomly lands on one of the sectors. What is the probability that the pointer lands on a shaded sector ?
 (a) $\frac{2}{9}$ (b) $\frac{4}{9}$ (c) $\frac{5}{9}$ (d) $\frac{8}{9}$



Second Group

► Answer the following questions :

- 1 Draw $\triangle RST$ where $R(-3, -3)$, $S(-4, 0)$, $T(0, 0)$ and then draw its image by translation $(x, y) \rightarrow (x - 1, y + 3)$ followed by translation $(x, y) \rightarrow (x + 4, y - 1)$
- 2 Find the solution set for the equation in \mathbb{Z} : $3x^3 - 3 = 2x^3 + 5$
- 3 Draw the triangle ABC in which $AB = 6$ cm, $BC = 8$ cm, and $AC = 10$ cm, then by using a ruler and compass bisect \overline{AC} at M . Is $AC = 2BM$?
- 4 If the area of the opposite triangle is equal to $(15x^4 + 6x^3 + 9x^2)$ square units, find the length of its base in terms of x if its corresponding height is equal to $(3x^2)$ length units.



- 5 From the set of numbers $\{3, 4, 6, 7\}$, form a 2-digit number consists of different digits. Write the sample space for this experiment and then find each of the following events:
- (a) Event (A) is the event "the tens digit is even".
- (b) Event (B) is the event "the number is divisible by 3".
- 6 Write the result of the following in scientific notation: $(5.2 \times 10^6) - (4\,000\,000)$
- 7 A square has a diagonal length of 8 feet, and a parallelogram has a base length of 10 feet and the corresponding height is equal to 4 feet. Find the sum of their areas.

Model 9

First Group

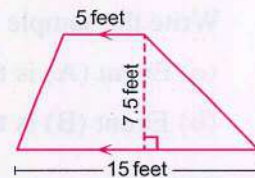
► Choose the correct answer from the given ones :

- 1 Which of the following equals $\sqrt{10^2 - 8^2}$?
- (a) 2 (b) 6 (c) 36 (d) 64
- 2 When rolling a fair die 10 times consecutively, if the number 6 appears twice on the upper face of the die, then what is the experimental probability of not appearing a 6 ?
- (a) $\frac{1}{6}$ (b) $\frac{2}{10}$ (c) $\frac{5}{6}$ (d) $\frac{8}{10}$
- 3 A square has a side length of s and an area A . What is the area of the square whose diagonal is $2s$?
- (a) A (b) $2A$ (c) $4A$ (d) A^2
- 4 If the speed of light is equal to $300,000\text{ km/s}$, then what is the speed of light in m/s ?
- (a) 3×10^5 (b) 3×10^7 (c) 3×10^8 (d) 3×10^{10}
- 5 If $(2x + 3)(x - 5) = 2x^2 + bx - 15$, then what is the value of b ?
- (a) $-7x$ (b) -7 (c) $7x$ (d) 7
- 6 The identity rotation is a rotation around the origin by an angle of measure
- (a) 90° (b) 180° (c) 270° (d) 360°
- 7 $8abc \div (8ab) = \dots\dots\dots$
- (a) 1 (b) $8c$ (c) c (d) zero
- 8 What is the inequality that expresses "three times the number x is less than 4" ?
- (a) $3x > 4$ (b) $3x < 4$ (c) $4x > 3$ (d) $4x \geq 3$
- 9 Which of the following expresses $\frac{a^6}{a^{-4}}$ in its simplest form ?
- (a) a^{10} (b) a^2 (c) a^{-2} (d) a^{-10}

Second Group

► Answer the following questions :

- 1 Find the area of the opposite trapezium.



- 2 Find the solution set for the equation in \mathbb{Z} : $(x + 3)^3 = 64$

- 3 Find the quotient of : $(x^2 - 64)$ divided by $(x - 8)$

- 4 Draw an angle with vertex A and its measure 120° , then divide it into 4 equal angles using a ruler and compass.

- 5 Find in its simplest form: $\frac{(-x)^6 \times x^3}{(-x)^5 \times (-x)^2}$

- 6 Draw the triangle whose vertices are the points: A (3 , 2) , B (8 , 2) , and C (8 , 6) , then draw its image by reflection in the X-axis.

- 7 A bag contains 15 identical cards numbered from 1 to 15. One card is drawn at random , and the number on the drawn card is observed. Write the following events :

(a) A is the event "the number is even and greater than 10".

(b) B is the event "the number is a factor of 12".

Model 10

First Group

► Choose the correct answer from the given ones :

- 1 What is the numerical value of the expression $a^2 \times b^{-2}$ when $a = 2$ and $b = 3$?

(a) 36

(b) 6

(c) 6^0

(d) $\frac{4}{9}$

- 2 If $\frac{x}{8b} = 1$, then what is the value of x ?

(a) b

(b) $-8b$

(c) $8b$

(d) 8

- 3 If the area of a rhombus is 100 square units , then what is the product of the lengths of its diagonals ?

(a) 25

(b) 50

(c) 100

(d) 200

- 4 If $\left(\frac{1}{2}x + 1\right)\left(\frac{1}{2}x - 1\right) = ax^2 - 1$, then what is the value of a ?

(a) -1

(b) $\frac{1}{2}$

(c) $\frac{1}{4}$

(d) 1

- 5 Which of the following points is the same point by reflection in the X-axis ?

(a) $(-3, 0)$

(b) $(0, -3)$

(c) $(1, -3)$

(d) $(-3, 1)$

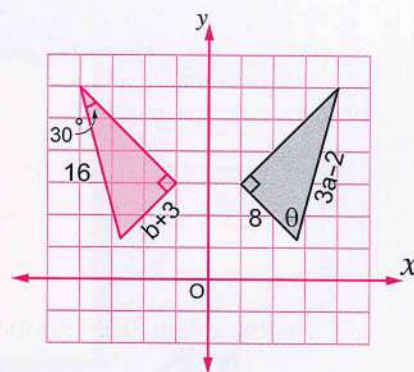
- 6 Which inequality expresses that the temperature X is less than 23° ?
 (a) $X \geq 23^\circ$ (b) $X \leq 23^\circ$ (c) $X < 23^\circ$ (d) $X > 23^\circ$
- 7 If $\sqrt[3]{a} = 8$, then what is the value of a ?
 (a) 2 (b) -2 (c) 8^2 (d) 8^3
- 8 Which of the following cannot be a probability of an event ?
 (a) 0.2 (b) -0.2 (c) 21 % (d) $\frac{1}{2}$
- 9 If the number $a \times 10^{-9}$ is written in scientific notation, then which of the following could be the value of a ?
 (a) -9 (b) 10 (c) -10 (d) -19

Second Group

► Answer the following questions :

1 In the opposite figure :

If one of the triangles is the image of the other by reflection in the y -axis ,
 find the values of: a , b and θ .



2 Calculate the area of the opposite square.



- 3 Write the result of the following in scientific notation : $(2.1 \times 10^4) + (4.1 \times 10^5)$
- 4 If $a = 2$ and $b = -3$, then find the numerical value of : $a^2 + b^2 + ab$
- 5 Draw a line segment of length 10 cm, then divide it using a ruler and compass into 4 equal segments. (Verify by the ruler that the four segments are equal).
- 6 Divide: $(8x^2 + 6x - 9)$ by $(2x + 3)$.
- 7 A fair coin was tossed and then a fair die was rolled, and the upper face of the coin and the number appears on the upper face of the die were observed. Represent the sample space in a tree diagram, then determine the following events :
 (a) The event (A) is the event "appearing tail and an odd number".
 (b) The event (B) is the event "appearing head and an even number".



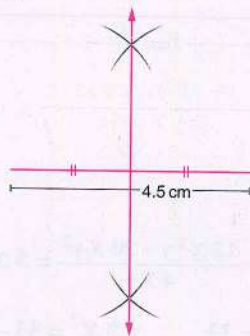
Answers of Final Assessment

First Group :

- 1 c 2 d 3 a 4 a 5 c
 6 c 7 a 8 a 9 b

Second Group :

1



$$2 \left(\frac{14}{15} \right)^0 - \sqrt{\frac{9}{25}} + \sqrt[3]{\frac{64}{125}} = 1 - \frac{3}{5} + \frac{4}{5} = \frac{6}{5} = 1 \frac{1}{5}$$

3

$$\begin{array}{r}
 X^2 - 5X \\
 X+5 \overline{) \begin{array}{r} X^3 \\ -X^3 \\ \hline -5X^2 - 25X \\ +5X^2 + 25X \\ \hline 0 \end{array}} \\
 \hline
 \end{array}$$

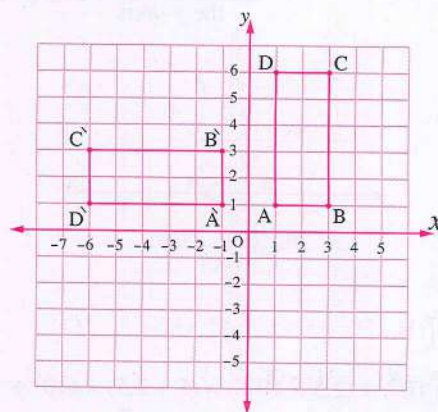
$$\therefore X^2 - 5X = X^2 + aX \quad \therefore a = -5$$

$$\begin{aligned}
 4 \quad (4n-3)^2 - (4n-3)(4n+3) \\
 = 16n^2 - 24n + 9 - (16n^2 - 9) \\
 = 16n^2 - 24n + 9 - 16n^2 + 9 = -24n + 18
 \end{aligned}$$

The numerical value of the result when $n = -1$:

$$-24(-1) + 18 = 24 + 18 = 42$$

$$\begin{aligned}
 5 \quad A(1, 1) &\xrightarrow{R(O, 90^\circ)} \hat{A}(-1, 1) \\
 B(3, 1) &\xrightarrow{R(O, 90^\circ)} \hat{B}(-1, 3) \\
 C(3, 6) &\xrightarrow{R(O, 90^\circ)} \hat{C}(-6, 3) \\
 D(1, 6) &\xrightarrow{R(O, 90^\circ)} \hat{D}(-6, 1)
 \end{aligned}$$



$$\begin{aligned}
 6 \quad \therefore 3X - 2 &\leq 4 & \therefore 3X &\leq 4 + 2 \\
 & & \therefore 3X &\leq 6 & \therefore X &\leq \frac{6}{3} \\
 & & \therefore X &\leq 2 & \therefore \text{The solution set} &= \{2, 1, 0\}
 \end{aligned}$$

$$7 \quad (A) \frac{4}{6} = \frac{2}{3} \quad (B) \frac{2}{6} = \frac{1}{3}$$

Answers of model 1

First Group :

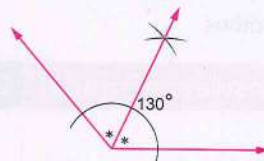
- 1 c 2 b 3 d 4 a 5 c
 6 b 7 c 8 a 9 b

Second Group :

$$1 \quad (a) \frac{5}{10} = \frac{1}{2} \quad (b) \frac{2}{10} = \frac{1}{5}$$

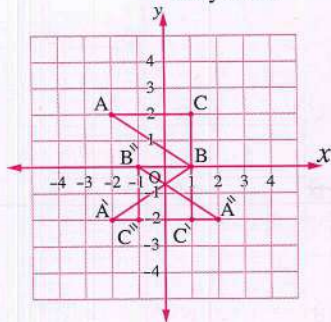
$$\begin{aligned}
 2 \quad \therefore 4X + 3 &\geq 3X - 2 & \therefore 4X - 3X &\geq -2 - 3 \\
 & & \therefore X &\geq -5 \\
 & & \therefore \text{The solution set} &= \{-5, -4, -3, -2, \dots\}
 \end{aligned}$$

3



$$\begin{aligned}
 4 \quad A(-2, 2) &\xrightarrow{\text{by reflection in the } x\text{-axis}} \hat{A}(-2, -2) \\
 &\xrightarrow{\text{by reflection in the } y\text{-axis}} \hat{\hat{A}}(2, -2) \\
 B(1, 0) &\xrightarrow{\text{by reflection in the } x\text{-axis}} \hat{B}(1, 0) \\
 &\xrightarrow{\text{by reflection in the } y\text{-axis}} \hat{\hat{B}}(-1, 0)
 \end{aligned}$$

$C(1, 2) \xrightarrow[\text{the } x\text{-axis}]{\text{by reflection in}} \hat{C}(1, -2)$
 $\xrightarrow[\text{the } y\text{-axis}]{\text{by reflection in}} \hat{\hat{C}}(-1, -2)$



5 $(5 \times 10^4) \div (2.5 \times 10^{-3}) = (5 \div 2.5) \times (10^4 \div 10^{-3})$
 $= 2 \times 10^7$

6

$$\begin{array}{r} X^2 + X + 2 \\ X+1 \overline{) \begin{array}{r} X^3 + 2X^2 + 3X + m \\ \underline{X^3 + X^2} \\ X^2 + 3X + m \\ \underline{X^2 + X} \\ 2X + m \\ \underline{2X + 2} \\ m - 2 \end{array}} \end{array}$$

$\therefore m - 2 = 0$

$\therefore m = 2$

7 The Area of the rhombus $= \frac{1}{2} \times 8 \times 10$
 $= 40$ square centimeters

The Area of the rectangle
 $= 5 \times 9 = 45$ square centimeters

\therefore The area of the rectangle is greater than the area of the rhombus

Answers of model 2

First Group :

- 1 b 2 c 3 d 4 b 5 d
 6 c 7 b 8 d 9 b

Second Group :

1 $A = \frac{1}{2} (7 + 9) \times 10 = 80$

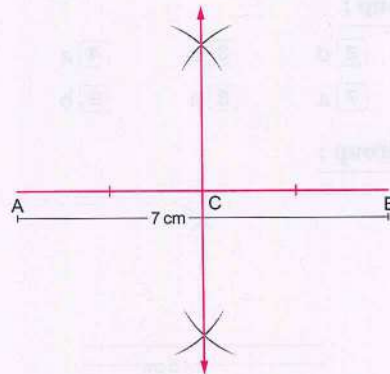
\therefore The area of the trapezium $= 80$ square inches

2 The number of the red marbles $= 40 \times \frac{3}{5}$

$= 24$ red marbles

3 $(X + 1)^2 - X(X + 2) = X^2 + 2X + 1 - X^2 - 2X = 1$

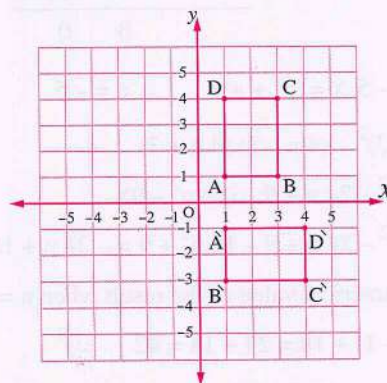
4



5 The height $= \frac{12X^2y + 20Xy^2}{4Xy} = 3X + 5y$

6 $\therefore 2X^2 + 1 = 33 \quad \therefore 2X^2 = 33 - 1 = 32$
 $\therefore X^2 = \frac{32}{2} = 16 \quad \therefore X = \pm\sqrt{16} = \pm 4$
 \therefore The solution set $= \{4, -4\}$

7 $A(1, 1) \xrightarrow{R(O, -90^\circ)} \hat{A}(1, -1)$
 $B(3, 1) \xrightarrow{R(O, -90^\circ)} \hat{B}(1, -3)$
 $C(3, 4) \xrightarrow{R(O, -90^\circ)} \hat{C}(4, -3)$
 $D(1, 4) \xrightarrow{R(O, -90^\circ)} \hat{D}(4, -1)$



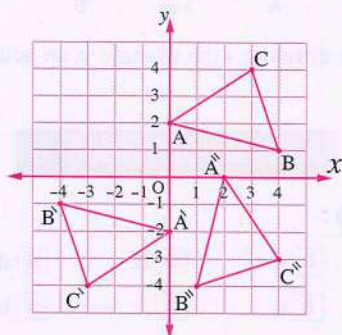
Answers of model 3

First Group :

- 1 c 2 d 3 d 4 b 5 b
 6 d 7 c 8 a 9 d

Second Group :

- 1 A (0, 2) $\xrightarrow{R(O, -180^\circ)}$ \hat{A} (0, -2)
 $\xrightarrow{R(O, 90^\circ)}$ $\hat{\hat{A}}$ (2, 0)
 B (4, 1) $\xrightarrow{R(O, -180^\circ)}$ \hat{B} (-4, -1)
 $\xrightarrow{R(O, 90^\circ)}$ $\hat{\hat{B}}$ (1, -4)
 C (3, 4) $\xrightarrow{R(O, -180^\circ)}$ \hat{C} (-3, -4)
 $\xrightarrow{R(O, 90^\circ)}$ $\hat{\hat{C}}$ (4, -3)



- 2 $A = \frac{1}{2} (4x+3)^2 = \frac{1}{2} (16x^2 + 24x + 9)$
 $= 8x^2 + 12x + \frac{9}{2}$
 \therefore The area of the square equals $(8x^2 + 12x + \frac{9}{2})$ square unit.

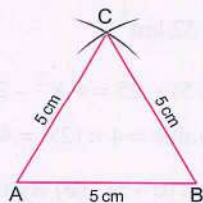
3

$$\begin{array}{r} x^2 + 3x + 3 \\ -4x + 5 \overline{) -4x^3 - 7x^2 + 3x + 15} \\ \underline{+4x^3 - 12x^2 + 15x} \\ -12x^2 + 3x + 15 \\ \underline{+12x^2 - 15x} \\ -12x + 15 \\ \underline{+12x - 15} \\ 0 \end{array}$$

\therefore The quotient = $(x^2 + 3x + 3)$

4 $\sqrt[3]{\frac{-125}{64}} \times \sqrt{\frac{16}{25}} + \left(\frac{4}{5}\right)^0 = \frac{-5}{4} \times \frac{4}{5} + 1 = -1 + 1 = \text{zero}$

5



- 6 $\because 5 - 3x < 2(x+1)$
 $\therefore 5 - 3x < 2x + 2 \quad \therefore -3x - 2x < 2 - 5$
 $\therefore -5x < -3 \quad \therefore x > \frac{-3}{-5}$
 $\therefore x > \frac{3}{5}$
 \therefore The solution set = $\{x : x \in \mathbb{Q}, x > \frac{3}{5}\}$

7 (a) $\frac{3}{20}$

(b) $\frac{14}{20} = \frac{7}{10}$

Answers of model 4

First Group :

- 1 c 2 d 3 b 4 d 5 c
 6 b 7 a 8 d 9 a

Second Group :

- 1 The length of the cube edge = $\sqrt[3]{512} = 8$ cm
 2 $3x(x^2 - 3x - 2) + x(4x - 3)$
 $= 3x^3 - 9x^2 - 6x + 4x^2 - 3x$
 $= 3x^3 - 5x^2 - 9x$
 3 $A = \frac{1}{2} (7x + 5x) \times (4x) = \frac{1}{2} (12x) (4x) = 24x^2$

The numerical value of the area :

$24 \times (2)^2 = 24 \times 4 = 96$

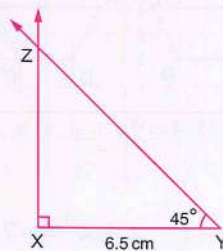
\therefore The area = 96 square units

4 $\frac{x^{-6} \times x^{-2}}{x^{-3} \times x^{-4}} = \frac{x^{-8}}{x^{-7}} = x^{-8 - (-7)} = x^{-1} = \frac{1}{x}$

5 (a) $\frac{1}{4}$

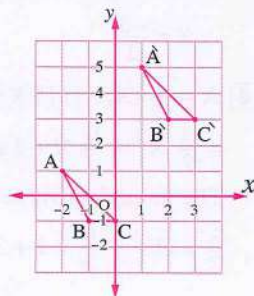
(b) $\frac{3}{4}$

6



From the drawing, the triangle is an isosceles triangle

- 7 A (-2, 1)
 B (-1, -1)
 C (0, -1)



Answers of model 5

First Group :

- 1 a 2 d 3 c 4 c 5 b
6 c 7 a 8 c 9 c

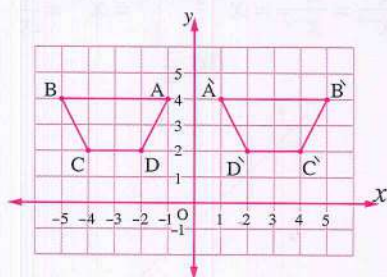
Second Group :

1

$$\begin{array}{r}
 x^2 + 4x + 3 \\
 x+2 \overline{) x^3 + 6x^2 + 11x + 6} \\
 \underline{-(x^3 + 2x^2)} \\
 4x^2 + 11x + 6 \\
 \underline{-(4x^2 + 8x)} \\
 3x + 6 \\
 \underline{-(3x + 6)} \\
 0 \quad 0
 \end{array}$$

The other factor = $(x^2 + 4x + 3)$

- 2 A $(-1, 4)$ by reflection in the y-axis $\rightarrow \hat{A}(1, 4)$
 B $(-5, 4)$ by reflection in the y-axis $\rightarrow \hat{B}(5, 4)$
 C $(-4, 2)$ by reflection in the y-axis $\rightarrow \hat{C}(4, 2)$
 D $(-2, 2)$ by reflection in the y-axis $\rightarrow \hat{D}(2, 2)$

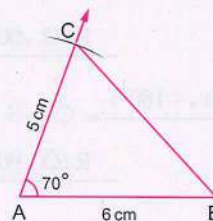


- 3 $\because 8x^3 + 20 = -7 \therefore 8x^3 = -7 - 20 = -27$
 $\therefore x^3 = \frac{-27}{8} \therefore x = \sqrt[3]{\frac{-27}{8}}$
 $\therefore x = \frac{-3}{2} \therefore \text{The solution set} = \left\{ \frac{-3}{2} \right\}$
 4 $A = \frac{1}{2}(x+1)(3x+6) = \frac{1}{2}(3x^2 + 9x + 6)$
 $= \frac{3}{2}x^2 + \frac{9}{2}x + 3$ square meters
 The numerical value of the area =
 $\frac{3}{2} \times (1)^2 + \frac{9}{2} \times 1 + 3 = \frac{3}{2} + \frac{9}{2} + 3 = 9 \text{ m}^2$

5 $(x+2y)(x-2y) + (x+y)^2$
 $= x^2 - 4y^2 + x^2 + 2xy + y^2$
 $= 2x^2 + 2xy - 3y^2$

6 (a) $\frac{11}{20}$ (b) $\frac{12}{20} = \frac{3}{5}$

7



From the drawing, the triangle is an acute-angled triangle.

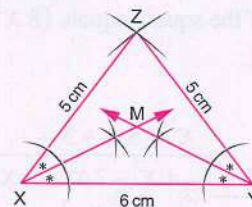
Answers of model 6

First Group :

- 1 b 2 a 3 b 4 d
5 c 6 c 7 a 8 b
9 d

Second Group :

1



From the drawing, yes $MY = MX$

- 2 (a) ① $\frac{3}{8}$ ② $\frac{1}{2}$
 (b) $\frac{5}{8}$
 3 The length of the base of the parallelogram
 $= \frac{2x^3 + 4x^2 + 10x}{2x}$
 $= (x^2 + 2x + 5)$ length units.
 4 $\sqrt{\frac{9}{4}} + \sqrt[3]{\frac{-27}{8}} + \left(\frac{4}{9}\right)^0 = \frac{3}{2} + \left(\frac{-3}{2}\right) + 1 = 1$
 5 $A = \frac{1}{2} \times (8)^2 = 32 \text{ km}^2$
 6 $(2x-5)(2x+5) + 25 = 4x^2 - 25 + 25 = 4x^2$
 The numerical value = $4 \times (2)^2 = 4 \times 4 = 16$
 7 (a) By translation $(6, 5)$ (b) By translation $(8, 2)$

Answers of model 7

First Group :

- 1 c 2 d 3 c 4 a 5 a
6 d 7 b 8 d 9 b

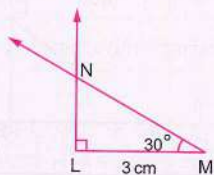
Second Group :

1

Image of the square BYMX $\xrightarrow{R(M, 90^\circ)}$

square AXML $\xrightarrow{R(M, 90^\circ)}$ square DLMZ

2



From the drawing, the length of $\overline{MN} \approx 3.5$ cm

3

$$\begin{array}{r} x^2 - 2x + 5 \\ x+2 \overline{) x^3 + x + 10} \\ \underline{-(x^3 + 2x^2)} \\ -2x^2 + x + 10 \\ \underline{+ (2x^2 + 4x)} \\ 5x + 10 \\ \underline{-(5x + 10)} \\ 0 \\ 0 \end{array}$$

\therefore The quotient $= x^2 - 2x + 5$

- 4 $\because 2(x+5) - 3 < 12 \quad \therefore 2x + 10 - 3 < 12$
 $\therefore 2x + 7 < 12 \quad \therefore 2x < 12 - 7$
 $\therefore x < \frac{5}{2}$
 \therefore Solution set $= \{2, 1, 0, -1, \dots\}$

5 The order is :

$$54 \times 10^4 < 7 \times 10^5 < 1.1 \times 10^8 < 7.8 \times 10^8$$

6 $\because A = \frac{1}{2} (b_1 + b_2) \times h$

$$\therefore 63 = \frac{1}{2} (10 + 8) \times h$$

$$\therefore 63 = \frac{1}{2} (18) \times h \quad \therefore 63 = 9 \times h$$

$$\therefore h = \frac{63}{9} = 7 \text{ feet}$$

7 (a) $\frac{6}{10} = \frac{3}{5}$ (b) $\frac{1}{10}$ (c) $\frac{9}{10}$

Answers of model 8

First Group :

- 1 d 2 b 3 c 4 c
5 a 6 b 7 c 8 d
9 c

Second Group :

1

$$R(-3, -3) \xrightarrow[(-1, 3)]{\text{by translation}} \hat{R}(-4, 0)$$

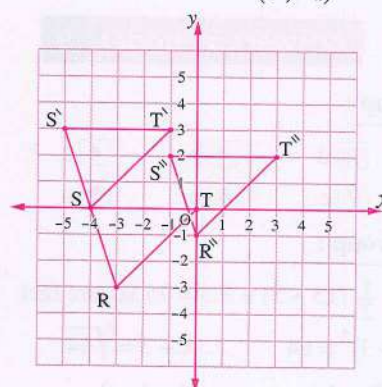
$$\xrightarrow[(4, -1)]{\text{by translation}} \hat{\hat{R}}(0, -1)$$

$$S(-4, 0) \xrightarrow[(-1, 3)]{\text{by translation}} \hat{S}(-5, 3)$$

$$\xrightarrow[(4, -1)]{\text{by translation}} \hat{\hat{S}}(-1, 2)$$

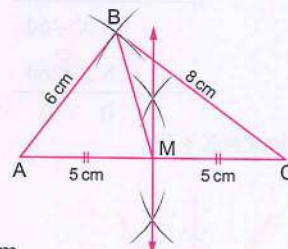
$$T(0, 0) \xrightarrow[(-1, 3)]{\text{by translation}} \hat{T}(-1, 3)$$

$$\xrightarrow[(4, -1)]{\text{by translation}} \hat{\hat{T}}(3, 2)$$



- 2 $\because 3x^3 - 3 = 2x^3 + 5 \quad \therefore 3x^3 - 2x^3 = 5 + 3$
 $\therefore x^3 = 8 \quad \therefore x = \sqrt[3]{8}$
 $\therefore x = 2 \quad \therefore$ The solution set $= \{2\}$

3



BM = 5 cm

Yes, $AC = 2 BM$

4 The length of its base = $\frac{15x^4 + 6x^3 + 9x^2}{3x^2}$
 $= (5x^2 + 2x + 3)$ length unit

5 $S = \{34, 36, 37, 43, 46, 47, 63, 64, 67, 73, 74, 76\}$

(a) $A = \{43, 46, 47, 63, 64, 67\}$

(b) $B = \{36, 63\}$

6 $(5.2 \times 10^6) - (4\,000\,000) = (5.2 \times 10^6) - (4 \times 10^6)$
 $= (5.2 - 4) \times 10^6$
 $= 1.2 \times 10^6$

7 The area of the square = $\frac{1}{2} \times d^2 = \frac{1}{2} \times 8^2$
 $= 32$ square feet

The area of the parallelogram = $b \times h = 10 \times 4$
 $= 40$ square feet

\therefore The sum of their areas = $32 + 40$
 $= 72$ square feet.

Answers of model 9

First Group :

- 1 b 2 d 3 b 4 c 5 b
 6 d 7 c 8 b 9 a

Second Group :

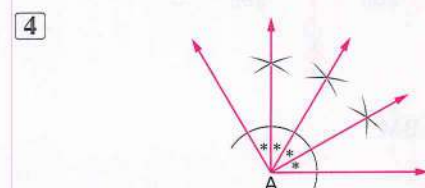
1 $\therefore A = \frac{1}{2} (15 + 5) \times 7.5 = 75$ square feet

2 $\therefore (x+3)^3 = 64 \quad \therefore x+3 = \sqrt[3]{64}$
 $\therefore x+3 = 4 \quad \therefore x = 4 - 3$
 $\therefore x = 1 \quad \therefore$ The solution set = $\{1\}$

3

$$\begin{array}{r} x+8 \\ x-8 \overline{) x^2 - 64} \\ \underline{\ominus x^2 + 8x} \\ 8x - 64 \\ \underline{\ominus 8x + 64} \\ 0 \end{array}$$

\therefore The quotient = $x + 8$

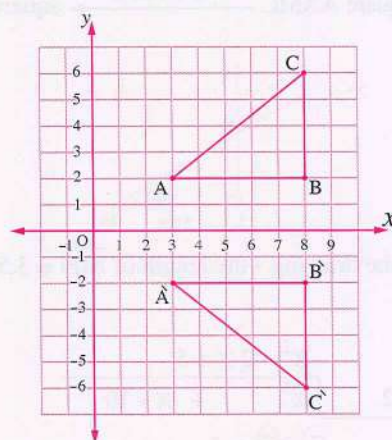


5 $\frac{(-x)^6 \times x^3}{(-x)^5 \times (-x)^2} = \frac{x^6 \times x^3}{-x^5 \times x^2} = \frac{x^{3+6}}{-x^{2+5}}$
 $= \frac{x^9}{-x^7} = -x^{9-7} = -x^2$

6 A (3, 2) $\xrightarrow{\text{by reflection in the x-axis}}$ A' (3, -2)

B (8, 2) $\xrightarrow{\text{by reflection in the x-axis}}$ B' (8, -2)

C (8, 6) $\xrightarrow{\text{by reflection in the x-axis}}$ C' (8, -6)



7 (a) $A = \{12, 14\}$

(b) $B = \{1, 2, 3, 4, 6, 12\}$

Answers of model 10

First Group :

- 1 d 2 c 3 d 4 c 5 a
 6 c 7 d 8 b 9 a

Second Group :

1 \therefore Reflection preserves the lengths of line segments

$\therefore 3a - 2 = 16$

$\therefore 3a = 16 + 2 = 18 \quad \therefore b + 3 = 8$

$\therefore a = 18 \div 3 = 6 \quad \therefore b = 8 - 3 = 5$

\therefore Reflection preserves the measurements of angles

$\therefore \theta + 90^\circ + 30^\circ = 180^\circ$

$\therefore \theta = 180^\circ - (90^\circ + 30^\circ)$

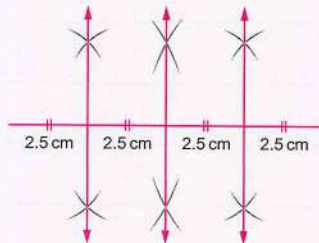
$\therefore \theta = 60^\circ$

2 $A = \frac{1}{2} \times (14)^2 = \frac{1}{2} \times 196 = 98$ square inches.

$$\begin{aligned} \text{3 } (2.1 \times 10^4) + (4.1 \times 10^5) \\ &= (2.1 \times 10^4) + (41 \times 10^4) \\ &= (2.1 + 41) \times 10^4 = 43.1 \times 10^4 = 4.31 \times 10^5 \end{aligned}$$

$$\begin{aligned} \text{4 } a^2 + b^2 + ab &= (2)^2 + (-3)^2 + 2(-3) \\ &= 4 + 9 + (-6) = 13 - 6 = 7 \end{aligned}$$

5

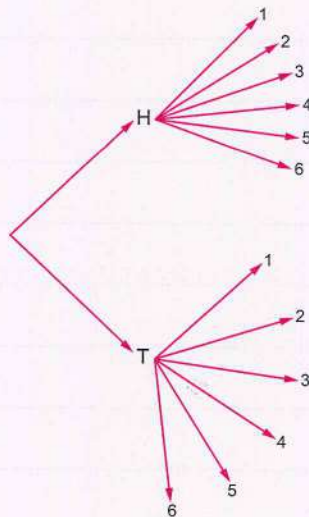


6

$$\begin{array}{r} 4x - 3 \\ 2x + 3 \overline{) 8x^2 + 6x - 9} \\ \underline{-(8x^2 + 12x)} \\ -6x - 9 \\ \underline{+(6x + 9)} \\ 0 \end{array}$$

\therefore The quotient $= 4x - 3$

7



$$\text{(a) } A = \{(T, 1), (T, 3), (T, 5)\}$$

$$\text{(b) } B = \{(H, 2), (H, 4), (H, 6)\}$$

حمل الآن

مجاناً وحصرياً

امتحانات رقم (3)

الترم الثاني



First: Choose the correct answer:

- 1 What is the value of $\sqrt[3]{64}$?
 a 2 b 4 c 8 d 64
- 2 $0.3 \times 0.005 =$
 a 1.5×10^3 b 1.5×10^{-2} c 1.5×10^2 d 1.5×10^{-3}
- 3 The S.S of the inequality $2x < 0$ in Z is
 a \emptyset b N c Z^- d Z^+
- 4 If point $D' (2, 5)$ is the image of D by the translation $(x, y) \rightarrow (x - 3, y + 2)$, then point D is
 a $(5, 3)$ b $(-1, 7)$ c $(2, 3)$ d $(5, 7)$
- 5 If point $B' (y + 2, 1)$ is the image of point $B (-1, 3)$ by rotation around the origin O by an angle of 90° clockwise, what is the value of y ?
 a -2 b 3 c -5 d 1
- 6 If the diagonals of a rhombus are 12cm and 20cm, then its area = cm^2 .
 a 25 b 90 c 50 d 120
- 7 If $\frac{3a^3}{c} = 1$, what is the value of c ?
 a -1 b 1 c $3a^3$ d $-3a^3$
- 8 $(4x^2 - 9) \div (2x + 3) =$
 a $(2x + 3)$ b $(2x - 3)$ c $(2x + 4)$ d $(2x - 4)$
- 9 In a set of colored cards (Red, Green, and Blue), if you choose one card randomly, the probability that the card is Blue is
 a $\frac{1}{4}$ b $\frac{1}{3}$ c $\frac{1}{2}$ d $\frac{1}{5}$

Second: Answer the following:

- 1 Find the value of: $\frac{2^5 \times 7^4 \times 10^7}{2^4 \times 10^6 \times 7^3} = \dots\dots\dots$
- 2 Find the quotient of: $(3x^2 + 10x + 7) \div (x + 1)$
- 3 Draw $\triangle ABC$, where $m(\angle ABC) = 35^\circ$, $m(\angle ACB) = 55^\circ$, and the length of \overline{BC} equals 6cm. Then, determine by measuring the type of the triangle according the lengths of its sides.
- 4 Find the solution set for the following equation in Q :
 $(x - 3)(x + 3) = 7$
 $\dots\dots\dots$
- 5 Find in the simplest form: $3ab \times (6a + 2b - 7)$.
 $\dots\dots\dots$
- 6 Find the area of a rhombus with diagonals 7cm and 14cm long.
 $\dots\dots\dots$
- 7 Khaled has a spinning game divided into 8 equal sections, as illustrated in the opposite figure. When he spins, the pointer lands randomly on one section. Find each of the following:



- a The probability that the pointer lands
on a number greater than or equal to 4.
- b The probability that the pointer lands on a number divisible by 3.

First: Choose the correct answer:

- 1 If you multiply 2×10^4 by 5×10^2 , what is the result in scientific notation?

a 10×10^7
b 1×10^8
c 1×10^7
d 1×10^6
- 2 Which of the following equals $\sqrt[3]{27x^3}$?

a $3x$
b $9x$
c $3x^2$
d $3|x|$
- 3 $4x(2x+3) = \dots\dots\dots$

a $8x^2 + 12x$
b $4x^2 + 12x$
c $8x^2 + 7x$
d $6x^2 + 12x$
- 4 What is the image of point $(2, -2)$ by the translation $(-2, 2)$ followed by the translation $(3, -1)$?

a $(5, -2)$
b $(4, -2)$
c $(5, -1)$
d $(3, -1)$
- 5 If a trapezium has a height of 8cm and a middle base length of 7.5cm, its area= $\dots\dots\dots$ square centimeters.

a 7.5
b 15
c 30
d 60
- 6 The image of point $(-1, -4)$ by reflection in the $\dots\dots\dots$ is $(-1, 4)$.

a x -axis
b y -axis
c origin point
d otherwise
- 7 The volume of a cuboid whose dimensions are $4a$ cm, $2a$ cm, and $2a$ cm, is $\dots\dots\dots$ cm^3 .

a $9a$
b $20a^2$
c $16a^3$
d $20a^3$
- 8 $6x^5 \div 2x^2 = \dots\dots\dots$

a $3x^2$
b $3x^3$
c $3x$
d $2x^3$
- 9 The probability of a certain event is $\dots\dots\dots$.

a 0
b 1
c $\frac{1}{2}$
d $\frac{1}{3}$

Second: Answer the following:

- 1 Write in the simplest form: $\frac{9x^3 - 15x^2 + 21x^4}{-3x}$
- 2 Simplify: $\frac{a^7 \times a^8 \times a^2}{a^3 \times a^9 \times a^5} = \dots\dots\dots$ (Where $a \neq 0$)
- 3 Draw rectangle ABCD with vertices A(1, 2), B(1, 3), C(5, 3), and D(5, 2). Then, draw its image under reflection in the x -axis.
- 4 Simplify: $\frac{14x - 21}{7} + \frac{28x}{-7}$
- 5 Find the value of: $(3x - 2)^2$
- 6 Draw angle ABC of measure 70° , then bisect it.
- 7 A fair die was rolled 150 times and the number appearing on the upper face was observed. Calculate the expected number of:
 - a The number 2 appearing = $\dots\dots\dots$
 - b The number 5 not appearing = $\dots\dots\dots$

First: Choose the correct answer:

- 1 $x^9 \div \dots = x^6$
 a x^6 b x^3 c x^{12} d x^{27}
- 2 If $\sqrt{x} = 3$, what is the value of x^2 ?
 a 1 b 3 c 81 d +9
- 3 What is the product of $(2x + 1)(x + 3)$?
 a $2x^2 + 7x + 3$ b $2x^2 + x + 3$
 c $x^2 + 7x + 3$ d $2x^2 + 7x + 4$
- 4 What is the image of point $(-3, 5)$ by a translation $(-2, 1)$ followed by a translation $(0, -3)$?
 a $(-5, 3)$ b $(-1, -3)$ c $(-5, -3)$ d $(5, 3)$
- 5 The parallel sides of a trapezium are 4cm and 7cm, and the height is 4cm. What is its area?
 a 20 cm^2 b 22 cm^2 c 28 cm^2 d 32 cm^2
- 6 If point $A'(2, -5)$ is the image of point A by the translation:
 $(x, y) \rightarrow (x, y - 2)$, then point A is
 a $(2, -3)$ b $(2, 7)$ c $(0, -2)$ d $(0, 7)$
- 7 What is the sum of 4.5×10^2 and 3.0×10^3 ?
 a 3.45×10^3 b 3.45×10^2 c 3.45×10^4 d 3.45×10^5
- 8 $2p(3p^2 + 4p - 5) = \dots$
 a $6p^3 + 8p^2 - 10p$ b $6p^3 + 4p - 5$
 c $6p^3 + 8p^2 + 10p$ d $6p^3 - 8p^2 - 10p$
- 9 If we draw a ball from a bag containing 2 red balls, 3 blue balls, and 1 green ball, the probability of drawing a blue ball is
 a $\frac{1}{3}$ b $\frac{1}{2}$ c $\frac{1}{6}$ d $\frac{1}{4}$

Second: Answer the following:

1 Calculate: $12 - (-5)^0 + (3^3 + 9^2)$

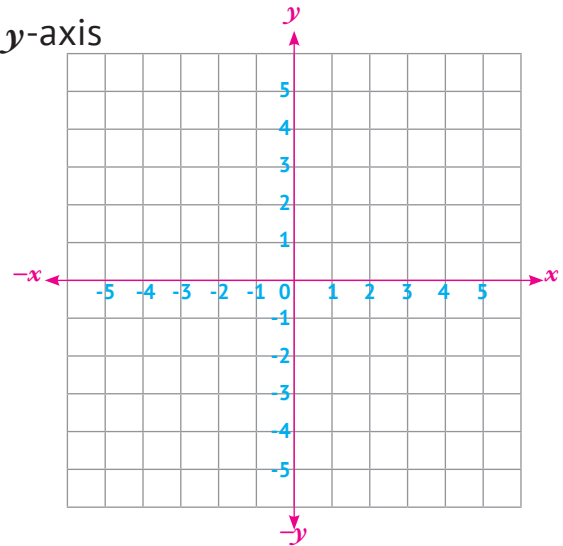
.....

2 Find the solution set in \mathbb{Z} : $2x - 1 \leq x + 3$

.....

3 Draw line segment MN, in which M(-4,-5) and N(-2,-1). Then, draw its image by reflection in: **a** The x -axis **b** The y -axis

4 Divide $(x^2 - 4x - 12) \div (x + 2)$.



5 Multiply $-3x^2 (4x^3 - 2x + 5)$.

6 A trapezoid-shaped garden has two parallel sides of lengths 8 meters and 12 meters, and its height is 5 meters. What is the area of the garden?

.....

7 From the set of numbers $\{1, 6, 7, 8\}$, form a two-digit number using different digits. Find the probability of the event that:

a The Tens digit of the number is smaller than the Ones digit:

b The number is greater than 70:

First: Choose the correct answer:

- 1 If $x^2 = 64$, what is the value of x ?
 a 8 b -8 c ± 8 d 16
- 2 What is the result of dividing 9×10^6 by 3×10^2 ?
 a 3×10^4 b 3×10^8
 c 30×10^4 d None of the previous
- 3 What is $(4x^2 + 8x) \div 4x$?
 a $x + 2$ b $x - 4$ c $x + 4$ d $x - 2$
- 4 The area of a rhombus is 96cm^2 , and the length of one diagonal is 12 units.
 What is the length of the other diagonal?
 a 16 b 18 c 20 d 24
- 5 What geometric transformation is equivalent to the translation (2, 4) followed the translation (1, -3)?
 a (3, 1) b (1, -1) c (2, 1) d (3, 7)
- 6 Which rotation makes the image of point C (3, 5) become C' (-5, 3)?
 a $R(O, 90^\circ)$ b $R(O, -90^\circ)$ c $R(O, 360^\circ)$ d $R(O, 180^\circ)$
- 7 If a rectangle has a length of 6m, and a width of 2m, then its area is
 a 12m^2 b 12m^3 c 8m^2 d 8m^3
- 8 $(4x^2 + 12x + 9) \div (2x + 3) = \dots\dots\dots$
 a $(x + 2)$ b $(x - 2)$ c $(2x + 3)$ d $(x - 3)$
- 9 A fair coin is tossed twice. What is the probability of getting a head once?
 a $\frac{1}{4}$ b $\frac{1}{2}$ c $\frac{3}{4}$ d 1

Second: Answer the following:

1 Simplify: $5x(2x - 3) + 3x(x + 4)$

.....

2 The area of a square is 128cm^2 . What is the length of its diagonal?

.....

3 Using prime factors and exponents, write 36:

4 Find the solution set in \mathbb{N} : $10 - 5x \leq 20$

.....

5 If a rectangle has a length of $4xy$ cm and a width of $3x$, find its area in terms of x and y .

.....

6 Draw line segment \overline{KL} of length 5cm, then bisect it using a ruler and a compass at point M. Show the steps of the solution.

7 Indicate which of the following experiments is random and which is not:

a Drawing a ball from a bag containing a white ball, a yellow ball, a red ball, and a green ball, all identical, and observing its color.....

b Rolling a fair die where all faces are numbered 4

First: Choose the correct answer:

- 1 What is the scientific notation for the number 0.00072?

a 7.2×10^{-4} b 7.2×10^4 c 72×10^{-5} d 0.72×10^{-3}
- 2 If $x = \sqrt{\frac{1}{16}}$, what is the value of x^3 ?

a $\frac{1}{4}$ b $\frac{1}{16}$ c $\frac{1}{64}$ d $\frac{1}{256}$
- 3 The quotient of $(4x^2 + 8x) \div 4x$ is

a $x + 2$ b $x - 10$ c $x + 10$ d $x - 2$
- 4 If (a, b) is translated to (a + 5, b - 3), and the image is (7, -4), what is the original point?

a (2, -1) b (12, -7) c (2, -7) d (12, -1)
- 5 The area of a rhombus is 49cm^2 , and one diagonal is twice the other. What are the lengths of the diagonals?

a 6 and 12 b 9 and 18 c 7 and 14 d 8 and 16
- 6 The image of point (-3, -4) by rotation about the origin with an angle of measure 180° is

a (3, 4) b (-3, 4) c (3, -4) d (-3, -4)
- 7 If $x \in \mathbb{N}$, then the S.S of the inequality $-x \geq 5$ is

a $\{-5, -6, -7, \dots\}$ b $\{5, 6, 7, \dots\}$ c $\{-4\}$ d \emptyset
- 8 $4a^5b \times 6a^3b^2 \times 3a^2 = \dots\dots\dots$

a $72a^{10}b^3$ b $72a^{10}b^2$ c $72a^9b^3$ d $72a^9b^2$
- 9 If a ball is drawn randomly from a box containing 50 identical balls, of which 10 are white and the rest are red and black. What is the probability that the drawn ball is not white?

a $\frac{1}{35}$ b $\frac{1}{5}$ c $\frac{4}{5}$ d $\frac{34}{35}$

Second: Answer the following:

- 1 Using prime factors and exponents, write: 72.
- 2 Find the product of $(-5a + 3)^2 =$
- 3 Draw an angle of measure 120° , then bisect it using a ruler and a compass.
Verify by measuring that they are equal in measure.
- 4 Divide: $x^2 + 7x + 12$ by $x + 3$.
- 5 Multiply: $-2x^2(3x^3 - 4x + 7)$
- 6 Using the square lattice, draw $\triangle ABC$, where $A(2, 2)$, $B(4, 3)$, and $C(3, 4)$. What is the image of $\triangle ABC$ by the translation $(x, y) \rightarrow (x - 3, y + 2)$?
- 7 A bag contains 50 identical marbles. If Hani randomly draws a marble and he finds it red, and the probability of drawing a red marble equals $\frac{2}{5}$, find the number of red marbles in the bag.

First: Choose the correct answer:

- 1 $\frac{1}{4}$ of milliard =..... (in scientific notation)
 a 2.5×10^6 b 2.5×10^7 c 2.5×10^8 d 2.5×10^9
- 2 If a fair coin is flipped three times in a row, the probability of getting heads all three times is
 a $\frac{1}{8}$ b $\frac{1}{4}$ c $\frac{1}{2}$ d $\frac{1}{6}$
- 3 If $(x + 3)(x - 2) = x^2 + bx + c$, then the value of c is
 a -1 b 1 c 6 d -6
- 4 $\div (-3a^2b) = 5ab^2$
 a $-15a^3b^3$ b $15a^3b^3$ c $-15a^2b^2$ d $-5a^3b^3$
- 5 A trapezium whose parallel bases are 15cm. and 11cm. long. What is the length of its middle base?
 a 26cm. b 15cm. c 13cm. d 11cm.
- 6 Which of the following points is the image of the point $(-1, 3)$ by reflection in x-axis?
 a $(1, 3)$ b $(-1, -3)$ c $(1, -3)$ d $(3, -1)$.
- 7 The Solution set of equation in Z: $x^3 + 26 = -1$
 a -9 b 9 c -3 d 3
- 8 If the point $(c, -5)$ is the image of the point $(4, 3)$ by the translation $(x, y) \rightarrow (X + 1, y - d)$, then $d - c = \dots\dots$
 a 8 b 9 c 3 d 2
- 9 The rotation which makes the image of point C $(4, 2)$ become $C'(-2, 4)$ is ...
 a $R(O, 90^\circ)$ b $R(O, -90^\circ)$ c $R(O, 360^\circ)$ d $R(O, 180^\circ)$

Second: Answer the following:

- 1 Find the solution set in \mathbb{Q} : $(x - 2)^3 + 3 = -5$

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- 2 Find the value: $\sqrt{2^2 + 3^2 + 12}$

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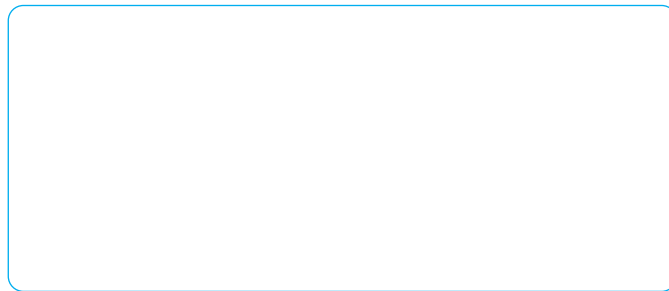
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- 3 A school has $54x^5 + 36x^4$ books to be divided among $6x^2$ shelves.
How many books will each shelf get in terms of x ?

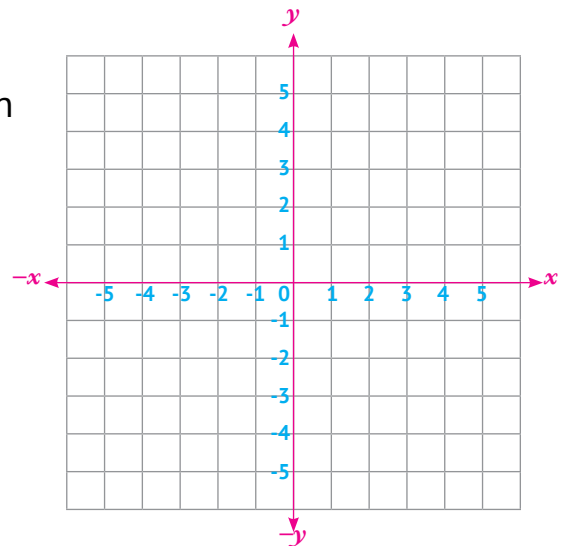
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- 4 Draw an angle of measure 100° , then bisect it using a ruler and compass.



- 5 Draw image of triangle ABC where
A (-4, 2), B (-1, 1), C (-3, 5) by translation
(6, -2)

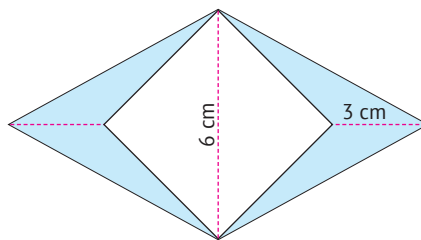


- 6 Calculate the area of shaded part between the rhombus and the square in the opposite figure

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- 7 The set $\{3, 2, 6\}$ is used in writing a 2_digit number, write each of the following events:

a The tens digit is odd.

b The ones digit is even.

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Model

7

First: Choose the correct answer:

- 1 If $\frac{3}{x} = \frac{x}{3}$, then $x = \dots\dots\dots$
 a 3 b ± 3 c ± 9 d -3
- 2 A cube its edge length is $5a$ unit lengths, then its volume is
 a $15a^3$ b $100a^2$ c $125a^3$ d $150a^2$
- 3 The parallel bases of a trapezium are 8cm. and 12cm, and the height is 5cm. What is its area?
 a 200cm^2 b 100cm^2 c 50cm^2 d 240cm^2
- 4 $12a^3b^2 \div 3a^2b = \dots\dots\dots$
 a $4ab$ b $4a^2b$ c $4a^2b^2$ d $4a^3b$
- 5 The S.S. of the inequality: $5 - 2x < 1$ in \mathbb{Z} is
 a $\{3, 4, 5\}$ b $\{2, 1, 0, -1, \dots\dots\}$ c $\{3, 4, 5, 6, \dots\dots\}$ d \emptyset
- 6 If $0.0000503 = m \times 10^{-5}$, then $m = \dots\dots\dots$
 a 503 b 5.03 c 50.3 d 0.503
- 7 If $B' (4, -3)$ is the image of B by translation $(x, y) \rightarrow (x + 2, y + 5)$, then the point B is
 a (2, -8) b (6, -8) c (2, 2) d (6, 2)
- 8 What rotation makes the image of point H (-8, 2) become $H' (-2, -8)$?
 a $R(O, 180^\circ)$ b $R(O, 360^\circ)$ c $R(O, -90^\circ)$ d $R(O, 90^\circ)$
- 9 What will be the probability of getting odd numbers if a die is thrown?
 a $\frac{1}{2}$ b 1 c $\frac{4}{6}$ d $\frac{1}{3}$

Second: Answer the following:

- 1 Find the solution set of the following inequality in Z: $2(x + 5) - 3 < 9$

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- 2 Find in simplest form: $(3x - 2)^2 - (3x - 2)(3x + 2)$

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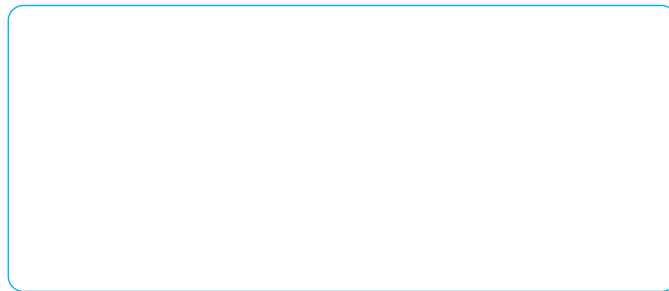
- 3 Find the quotient of dividing: $(6x^6 - 18x^4 - 12x^3) \div 6x^3$

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- 4 Draw the triangle ABC where $AB = 4\text{cm}$, $BC = 3\text{cm}$, and, $m(\angle A) = 90^\circ$

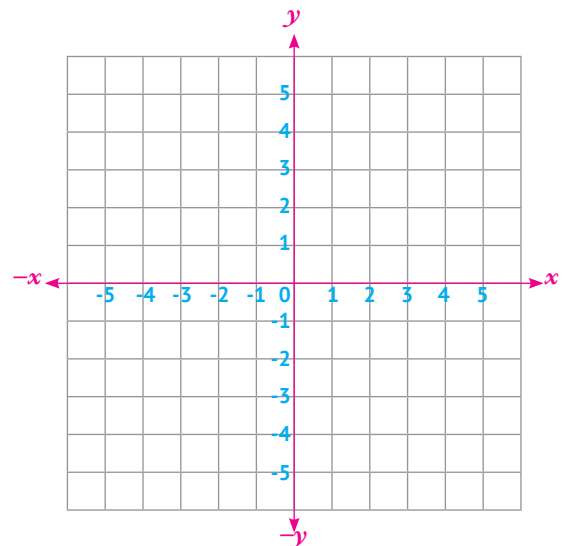
Then determine the type of triangle according to its sides.



- 5 Draw image of triangle ABC where

A (-6, -1), B (-2, -1), C (-5, -6)

by rotation $R(O, 270^\circ)$



- 6 A square, whose area equals the area of the rectangle whose dimensions are 2cm, and 9cm, find the length of its diagonal.

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- 7 Find the value of $(\frac{3^3 \times 3^{-2}}{3^{-1} \times 3^4})^{-2}$ “In the simplest form.”

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- 8 A bag contains 25 identical cards numbered from 1 to 25. One card is drawn randomly, and the number on the drawn card is recorded. Write each of the following events:

- a** Event (A) is the event of drawing a number less than 4.
- b** Event (B) is the event of drawing a number that is a multiple of 6.
- c** Event (C) is the event of drawing an odd number that is divisible by 5.

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First: Choose the correct answer:

- 1 $\sqrt{a} = \sqrt[3]{125}$, then $a = \dots\dots\dots$
 a 5 b ± 5 c 25 d ± 25
- 2 $(-3a^4b) \times 2ab \times (-6a) = \dots\dots\dots$
 a $-36a^6b^2$ b $36a^6b^2$ c $-7a^4b$ d $-6a^4b^2$
- 3 $(12x^2 + 6x) \div 3x = \dots\dots\dots$
 a $9x + 2$ b $4x + 2$ c $9x + 3$ d $3x + 9$
- 4 The area of a rhombus is 60cm^2 , and the length of one diagonal is 12cm.
 What is the length of the other diagonal? $\dots\dots\dots$
 a 10 b 20 c 5 d 40
- 5 If $x + y = 3$, $x - y = 7$, then find the value of $x^2 - y^2$
 a 10 b -10 c 21 d -40
- 6 If the image of point $(2x - 4, 5)$ by reflection in y-axis is itself, then the
 value of x is $\dots\dots\dots$
 a 0 b -2 c 2 d -4
- 7 The S.S. of the inequality: $17 - 3x < 2$ in N is.
 a $\{4, 3, 2, 1, 0, \dots\}$ b $\{4\}$ c $\{6, 7, 8, \dots\dots\dots\}$ d N
- 8 If: $0.00079 = 7.9 \times a$, then $a = \dots\dots\dots$
 a 10^3 b 10^{-3} c 10^{-4} d 10^4
- 9 What is the probability of getting two numbers their sum are 7 on the upper
 faces if two distinct dice are thrown?
 a $\frac{5}{24}$ b $\frac{7}{36}$ c $\frac{5}{36}$ d $\frac{1}{6}$
- 10 What is the image of the point $(5, -2)$ by a translation of 5 units in the negative
 direction of the x-axis?
 a $(5, -7)$ b $(0, -2)$ c $(10, -2)$ d $(5, -3)$

Second: Answer the following:

- 1 Without finding the values, find the median of the numbers:

$$(-2)^3, 3^2, \sqrt[3]{-27}, \sqrt{64}, \frac{1}{3^{-3}}$$

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- 2 If $x=2$, $y=3$, then find the value of $x^y + y^x$

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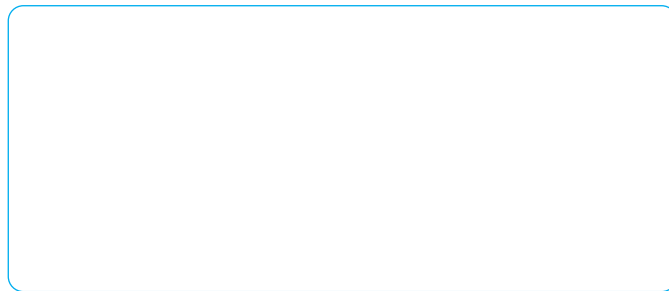
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- 3 Find in simplest form: $(x-1)(x-4) - (x-2)(x+2)$

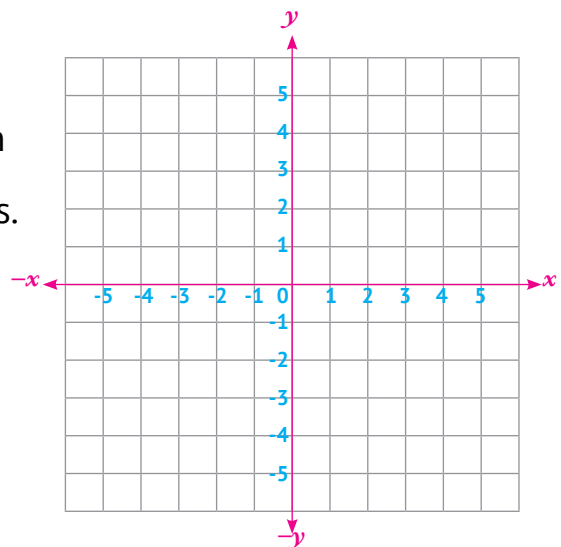
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- 4 Draw the line segment of length 5cm, then bisect it using a ruler and compass at point C, Showing the steps of solutions.



- 5 Draw image of triangle OBC where
O (0, 0), B (4, 0), C (-1, 2) by reflection in
x-axis followed by reflection in y – axis.



- 6 The set $\{1, 2, 3\}$ is used to form 2-digit number, write the probability of each of the following events:

a The tens digit is even:

b The sum of the two digits is 5:

First: Choose the correct answer:

- 1 $\sqrt{10^2 - 6^2} = \dots\dots\dots$
 - a 16
 - b ± 4
 - c 8
 - d 4
- 2 $(x - 2)(x + 5) = \dots\dots\dots$
 - a $x^2 + 3x - 10$
 - b $x^2 - 3x - 10$
 - c $x^2 - 3x + 10$
 - d $x^2 + 3x + 10$
- 3 If $9m \times \dots\dots\dots = 27m^3$ what is the missing term?
 - a 3m
 - b $3m^2$
 - c $18m^3$
 - d $9m^2$
- 4 What is the image of the point (5, -7) after reflection in the x-axis?
 - a (5, 7)
 - b (-5, 7)
 - c (-5, -7)
 - d (5, -7)
- 5 If the speed of light is equal to 300,000 km/sec, what is the speed of light in m/sec?
 - a 3×10^5
 - b 3×10^7
 - c 3×10^8
 - d 3×10^{10}
- 6 The S.S. of the inequality: $4 - x > 3$ in N is.
 - a { 0, -1, -2, -3, ... }
 - b { 0, 1, 2, 3, 4, ... }
 - c {0}
 - d \emptyset
- 7 What is the Image of the point (-3, 5) by translation (2, -1) followed by translation (0, -3)?
 - a (-1, 0)
 - b (-1, -1)
 - c (-1, 1)
 - d (-1, 2)
- 8 Which rotation makes the image of the point (4, 2) to become (2, -4)?
 - a $R(O, 180^\circ)$
 - b $R(O, 360^\circ)$
 - c $R(O, -90^\circ)$
 - d $R(O, 90^\circ)$
- 9 On experiment of rolling a fair die once, what is the probability of getting a number divisible by 3?
 - a zero
 - b $33 \frac{1}{3} \%$
 - c 50 %
 - d 75 %

Second: Answer the following:

- Find in simplest form: $4x(3x - 2) + 2x(x + 2)$, then find the numerical value of the resulting expression when $x = 1$

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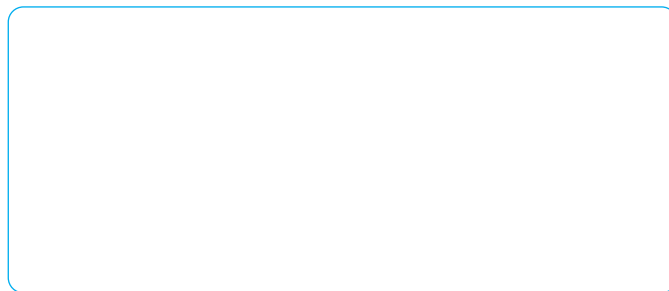
- A school has $45x^4 + 25x^3$ books to be divided among $5x$ shelves. How many books will each shelf get in term of x ?

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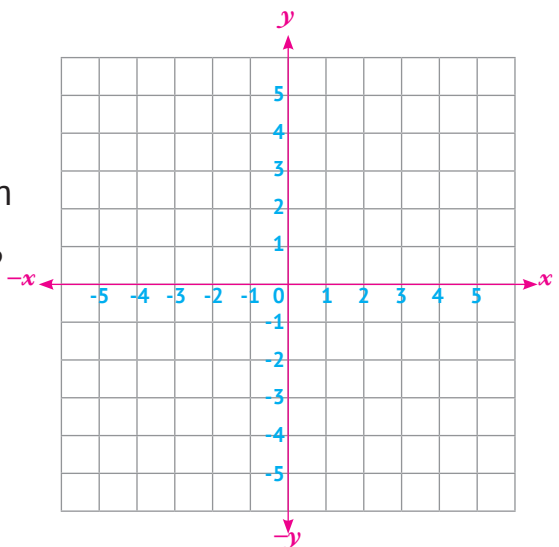
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- Draw triangle XYZ where: $XY = 5\text{cm}$, $YZ = 6\text{cm}$, $XZ = 5\text{cm}$, Determine its type according to the measures of its angles.



- Draw parallelogram ABCD where $A(-1, 1)$, $B(2, 1)$, $C(4, 3)$, and $D(1, 3)$.
What is the image of the parallelogram by the translation $(x, y) \rightarrow (x - 2, y - 1)$?



- 5 Find the length of the diagonal of a square whose area is equal to the area of a rhombus with diagonal lengths of 6 meters and 24 meters

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- 6 Find the value of: $(\frac{-2}{3})^2 + \sqrt{\frac{25}{4}} + \sqrt[3]{\frac{125}{64}}$ "In the simplest form."

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- 7 A card was drawn randomly from a set of identical cards numbered from 1 to 15. Find the probability that the drawn card carries:

a A number greater than 15.

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b An odd number.

.....

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c A number divisible by 5:

.....

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First:

Choose the correct answer:

- 1 $\sqrt[3]{\sqrt{64}}$
 a 16 b 8 c 4 d 2
- 2 $6x^2 \div 2x = \dots\dots\dots$
 a $3x^2$ b $3x^3$ c $3x$ d $2x^3$
- 3 Multiply: $(x - 3)(x + 4) = \dots\dots\dots$
 a $x^2 - 7x - 12$ b $x^2 + x - 12$ c $x^2 - x - 12$ d $x^2 + x + 12$
- 4 The height of a trapezium is 4cm, and the area is 40cm^2 . If one parallel side is 8cm, what is the length of the other parallel side?cm
 a 10 b 12 c 14 d 20
- 5 Which of the following is the solution for the inequality $2x - 3 > 5$?
 a $x > 4$ b $x > 1$ c $x < 4$ d $x < 1$
- 6 If the thickness of a sheet of paper is 0.012cm, then a ream of 400 sheets is of height= cm
 a 48×10^{-3} b 48×10^{-2} c 4.8×10^{-1} d 4.8×10^0
- 7 Which translation makes the image of the point (4 , 5) to become (-2 , 1)?
 a (-6 , 6) b (-6 , -4) c (2 , -4) d (6 , -6)
- 8 The Image of the point (-2, 3) by rotation about the origin with an angle of measure 90° with anti-clock wise direction is
 a (3 , 2) b (-3 , -2) c (-3 , 2) d (2 , -3)
- 9 If a fair die is rolled, the probability of getting a number less than 5 is
 a $\frac{2}{3}$ b $\frac{1}{2}$ c $\frac{1}{3}$ d $\frac{1}{6}$

Second: Answer the following:

- 1 Find in simplest form: $(x - 2)^2 - (x - 2)(x + 2)$

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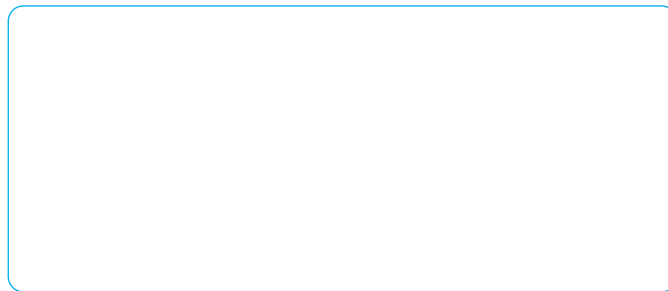
- 2 Find the quotient of dividing: $-16 + x^2 - 6x$ by $x + 2$ where $x \neq -2$

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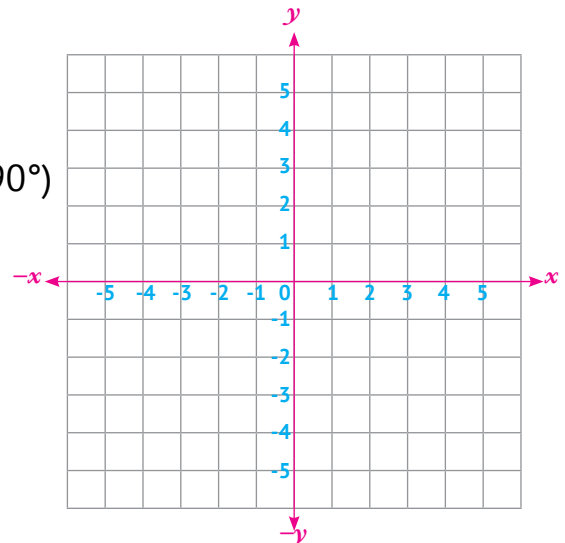
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- 3 Draw the triangle ABC, where: $AB = 5\text{cm}$, $m(A) = 60^\circ$, $m(\angle B) = 60^\circ$, and determine by measuring the type of the triangle according the lengths of its sides.



- 4 Draw image of triangle ABC where
 $A(-4, -1)$, $B(-2, -3)$, $C(-3, -6)$ by rotation
 $R(o, 180^\circ)$ followed by rotation $R(o, 90^\circ)$



- 5 The area of a triangle is 36cm^2 , and its height is 12cm . What is the length of its base?

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- 6 Find the value of: $\frac{(-4)^4 \times (-4)^3 \times 4^2}{(-4)^6 \times (-4)^4}$ "In the simplest form."

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- 7 A jar contains 16 candies: 8 chocolate, 5 strawberry , and 3 Lemon. If a candy is chosen randomly, find the probability that the candy is:

a Strawberry.

b Not chocolate.

c Either lemon or chocolate.

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Revision Book Guide Answers

Final Exams

Model 1

First

- | | | |
|----------|------------------------|--------------------|
| 1 4 | 2 1.5×10^{-3} | 3 Z^{-} |
| 4 (5, 3) | 5 1 | 6 120cm^2 |
| 7 $3a^3$ | 8 $(2x -)$ | 9 $\frac{1}{3}$ |

Second

- $2 \times 7 \times 10 = 140$
- $3x + 7$
- Draw by yourself.
- $x^2 - 9 = 7$ $x = 16$ s.s = {4, -4}
- $18a^2b + 6ab^2 - 21ab$
- Area = $\frac{1}{2} \times 7 \times 14 = 49\text{cm}^2$
- a $\frac{5}{8}$
b $\frac{2}{8} = \frac{1}{4}$

Model 2

First

- | | | |
|-------------------|----------|----------------|
| 1 1×10^7 | 2 $3x$ | 3 $8x^2 + 12x$ |
| 4 (3, -1) | 5 60 | 6 x-axis |
| 7 $16a^3$ | 8 $3x^3$ | 9 1 |

Second

- $-3x^2 + 5x - 7x^3$
- 1
- Draw by yourself.
- $2x - 3 - 4x = -2x - 3$
- $9x^2 - 12x + 4$
- Draw by yourself.
- a $\frac{1}{6} \times 150 = 25$ times.
b $\frac{5}{6} \times 150 = 125$ times.

Model 3

First

- | | | |
|----------------------|-----------------------|-------------------|
| 1 x^3 | 2 81 | 3 $2x^2 + 7x + 3$ |
| 4 (-5, 3) | 5 22cm^2 | 6 (2, -3) |
| 7 3.45×10^3 | 8 $6p^3 + 8p^2 - 10p$ | |
| 9 $\frac{1}{2}$ | | |

Second

- $12 - 1 + 27 + 81 = 119$
 - $x \leq 4$ s.s = {4, 3, 2, 1, 0, -1,}
 - Draw by yourself.
 - $x - 6$
 - $-12x^5 + 6x^3 - 15x^2$
 - Area = $\frac{4}{6} (12+8) \times 5 = 10 \times 5 = 50 \text{ m}^2$
 - S = {16, 17, 18, 61, 67, 68, 71, 76, 78, 81, 86, 87}
- a $\frac{6}{12} = \frac{1}{2}$ b $\frac{6}{12} = \frac{1}{2}$

Model 4

First

- | | | |
|------------------|-------------------|--------------------|
| 1 ± 8 | 2 3×10^4 | 3 $x + 2$ |
| 4 16cm | 5 (3, 1) | 6 $R(0, 90^\circ)$ |
| 7 12m^2 | 8 $(2x + 3)$ | 9 $\frac{1}{2}$ |

Second

- $13x^2 - 3x$
- $d = \sqrt{128 \times 2} = 16\text{cm}$
- $2^2 \times 3^2$
- $-5x \leq 10$ $x \geq -2$ s.s = N
- Area = $L \times w = (4xy)(3x) = 12x^2y$
- Draw by yourself.
- a Random. b Not random.

Model 5

First

- 1 7.2×10^{-4} 2 $\frac{1}{64}$ 3 $x + 2$
 4 $(2, -1)$ 5 7 and 14 6 $(3, 4)$
 7 \emptyset 8 $72a^{10}b^5$ 9 $\frac{4}{5}$

Second

- 1 $2^3 \times 3^2$ 2 $25a^2 - 30a + 9$
 3 Draw by yourself. 4 $x + 4$
 5 $-6x^5 + 8x^3 - 14x^2$ 6 Draw by yourself.
 7 $\frac{2}{5} \times 50 = 20$ marbles.

Model 6

First

- 1 2.5×10^{-4} 2 $\frac{1}{8}$ 3 -6
 4 $-15a^3b^3$ 5 13cm 6 $(-1, -3)$
 7 -3 8 3 9 $R(O, 90^\circ)$

Second

- 1 $(x - 2)^3 = -8$
 $x - 2 = -2$ $x = 0$ S.S $\{0\}$
 2 $\sqrt{4 + 9 + 12} = \sqrt{25} = 5$
 3 $(54x^5 + 36x^4) \div 6x^2 = 9x^3 + 6x^2$
 4 Draw by yourself. 5 Draw by yourself.
 6 Area of rhombus = $\frac{1}{2} \times 6 \times 12 = 36\text{cm}^2$
 Area of square = $\frac{1}{2} \times 6 \times 6 = 18\text{cm}^2$
 Area of shaded part = $36 - 18 = 18\text{ cm}$
 7 a $\{32, 36, 33\}$ b $\{22, 62, 32, 26, 66, 36\}$

Model 7

First

- 1 ± 3 2 $125a^3$ 3 50 cm^2
 4 $4ab$ 5 $\{3, 4, 5, 6, \dots\}$ 6 5.03
 7 $(2, -8)$ 8 $R(O, 90^\circ)$ 9 $\frac{1}{2}$

Second

- 1 $2(x + 5) < 12$
 $(x + 5) < 6$ $x < 1$ S.S = $\{0, -1, -2, \dots\}$
 2 $= 9x^2 - 12x + 4 - 9x^2 + 4$
 $= -12x + 8$
 3 $x^3 - 3x - 2$
 4 Draw by yourself. 5 Draw by yourself.
 6 Area of rectangle = $2 \times 9 = 18$
 $\frac{1}{2}d^2 = 18$ $\therefore d = 6$
 7 A $\{1, 2, 3\}$
 B $\{6, 12, 18, 24\}$
 C $\{5, 15, 25\}$

Model 8

First

- 1 25 2 $36a^6b^2$ 3 $4x + 2$
 4 10 5 21 6 2
 7 $\{6, 7, 8, \dots\}$ 8 10^{-4} 9 $\frac{1}{6}$
 10 $(0, -2)$

Second

- 1 The order: $(-2)^3, \sqrt[3]{-27}, \sqrt{64}, 3^2, \frac{1}{3^{-2}}$
 The median is $\sqrt{64}$
 2 $2^3 + 3^2 = 8 + 9 = 17$
 3 $= x^2 - 5x + 4 = -x^2 + 4$
 $= -5x + 8$
 4 Draw by yourself. 5 Draw by yourself.
 6 A = $\{12, 22, 32\}$
 $P(A) = \frac{3}{9} = \frac{1}{3}$
 B = $\{23, 32\}$
 $P(B) = \frac{2}{9}$

Model 9

First

- 1 8 2 $x^2 + 3x - 10$ 3 $3m^2$
 4 (5, 7) 5 3×10^8 6 $\{0\}$
 7 (-1, 1) 8 $R(0, -90^\circ)$ 9 $33 \frac{1}{6} \%$

Second

- 1 $= 12x^2 - 8x + 2x^2 + 4x = 14x^2 - 4x$
 at $x = 1$ The value $= 14 - 4 = 10$
 2 $(45x^4 + 25x^3) \div 5x = 9x^3 + 5x^2$
 3 Draw by yourself. 4 Draw by yourself.
 5 Area of rhombus $= \frac{1}{2} \times 6 \times 24 = 72m^2$
 $\frac{1}{2}d^2 = 72$ $\therefore d = 12m$
 6 $\frac{9}{4} + \frac{5}{2} + \frac{5}{4} = 6$
 7 a $A = \emptyset$ $P(A) = 0$
 b $B = \{1, 3, 5, 7, 9, 11, 13, 15\}$ $P(B) = \frac{8}{15}$
 c $C = \{5, 10, 15\}$ $P(C) = \frac{3}{15} = \frac{1}{5}$

Model 10

First

- 1 2 2 $3x$ 3 $x^2 + x - 12$
 4 12 5 $x > 4$ 6 4.8×10^0
 7 (-6, -4) 8 (3, -2) 9 $\frac{2}{3}$

Second

- 1 $x^2 - 4x + 4 - x^2 + 4 = -4x + 8$
 2 The quotient $= x - 8$
 3 Draw by yourself.
 4 Draw by yourself.
 5 $36 = \frac{1}{2} \times b \times 12$ $\therefore b = 6cm$
 6 $\frac{(-4)^9}{(-4)^{10}} = (-4)^{-1} = \frac{-1}{4}$
 7 a $\frac{5}{16}$ b $\frac{8}{16} = \frac{1}{2}$ c $\frac{11}{16}$

حمل الآن

مجانا وحصريا

امتحانات رقم (4)

الترم الثاني



1st Model

Time : 2 hr
grade 7

Choose:

- 1 Which of the following equals $3 \times 3 \times 3 \times 3 = \dots\dots\dots$
- (a) 3×4 (b) 4^3 (c) 3^4 (d) $3 + 4$
- 2 The scientific notation for the number 35 millions = $\dots\dots\dots$
- (a) 35000000 (b) 3.5×10^7 (c) 3.5×10^6 (d) 35×10^7
- 3 $(a^2 + 3a) \div a = \dots\dots\dots$
- (a) $a + 3$ (b) $3a$ (c) $a^3 + 3a^2$ (d) $4a$
- 4 if $\sqrt[3]{x} = \sqrt{9}$ then $x = \dots\dots\dots$
- (a) 3 (b) 9 (c) 27 (d) 81
- 5 if $x^2 + 6 = 7$ the $x = \dots\dots\dots$
- (a) 1 (b) -1 (c) ± 1 (d) 7
- 6 The image of the point (2 , 5) by rotation R (O , 90°) is $\dots\dots\dots$
- (a) (5 , 2) (b) (-5 , 2) (c) (-5 , -2) (d) (5 , -2)
- 7 The area of a square with a diagonal length = 8 m is $\dots\dots\dots$ m
- (a) 64 (b) 16 (c) 32 (d) 50
- 8 The image of the point (3 , -5) by reflection across the x-axis is $\dots\dots\dots$
- (a) (3 , -5) (b) (-3 , -5) (c) (3 , 5) (d) (-3 , 5)
- 9 In the experiment of tossing a fair coin once and observing the upper face what is the probability of obtaining a head (H)?
- (a) zero (b) $\frac{1}{2}$ (c) $\frac{1}{4}$ (d) 1

Solve the following :

- 1 Find the area of the trapezium the lengths of its parallel bases are 10 inches and 6 inches and its height of 4 inches.
- 2 Find the solution set in Z for :
 $3x - 5 > 1$
- 3 Divide $(x^2 - 5x + 6)$ by $(x - 3)$
- 4 Draw an angle of measure 130° then bisect it using a ruler and compass verify it by measuring. (dont erase the arcs)

- 5 A bag contains 5 red ball 6 blue balls and 4 green balls all balls are identical. a ball is drawn randomly from the bag and its colour is observed , find the probability at the drawn ball is :

- (a) blue
(b) red
(c) blue or green

- 6 Simplify :

$$\frac{a^{-5} \times a^{-2}}{a \times a^2}$$

- 7 Find the solution set for the following equation :
 $(x + 2)^3 = 27$

2nd Model

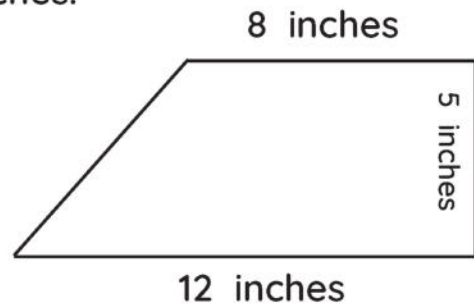
Time : 2 hr
grade 7

Choose:

- 1 if $a^3 = 64$ the the value of $a =$
- (a) 8 (b) 4 (c) ± 4 (d) 16
- 2 if the speed of light is equal to 36000 km/s then what is the speed of light in m/s ?
- (a) 3.6×10^3 (b) 3.6×10^5 (c) 3.6×10^6 (d) 3.6×10^7
- 3 $(15a^2 - 5a) \div 5a =$
- (a) $3a + a$ (b) $3a - 1$ (c) $3a + 1$ (d) a
- 4 $3x^5 (-2x^3) =$
- (a) $-6x^8$ (b) $-6x^2$ (c) $6x^8$ (d) $6x^2$
- 5 $(x + 3)(x - 3) =$
- (a) $x^2 + 9$ (b) $x^2 - 9$ (c) $x^2 + 6$ (d) zero
- 6 The image of the point $(2, 1)$ by rotation $R(O, -90^\circ)$ is
- (a) $(1, 2)$ (b) $(1, -2)$ (c) $(-2, 1)$ (d) $(2, -1)$
- 7 The daigonal length of a square with an area $= 18 \text{ m}^2$ is m
- (a) 18 (b) 6 (c) 3 (d) 9
- 8 The identity rotation is a rotation around the origin by an angle of measure°
- (a) 90 (b) 180 (c) 270 (d) 360
- 9 if $4x^2 = 1$ then $x =$
- (a) zero (b) $\pm \frac{1}{2}$ (c) $\frac{1}{4}$ (d) 1

Solve the following :

- 1 Find the area of the trapezium the lengths of its parallel bases are 12 inches and 8 inches and its height of 5 inches.



- 2 Find the solution set in Z for :
 $2x - 5 \geq 1$

- 3 Divide $(x^3 + x + 10)$ by $(x + 2)$

- 4 A bag contains 15 identical cards numbered from 1 to 15. One card is drawn at random and the number on the drawn card is observed. Write the following events :
a) the drawn card has prime number on it

- 5 Draw the triangle LMN in which $LM = 4 \text{ cm}$, $m(\angle M) = 90^\circ$, $MN = 3 \text{ cm}$ and determine the length of LN.

- 6 Simplify :

$$\frac{3^{-7} \times 3^{-2}}{3^3 \times 3^2} =$$

- 7 Find the solution set for the following equation :
 $5x^3 - 9 = 31$

3rd Model

Time : 2 hr
grade 7

Choose:

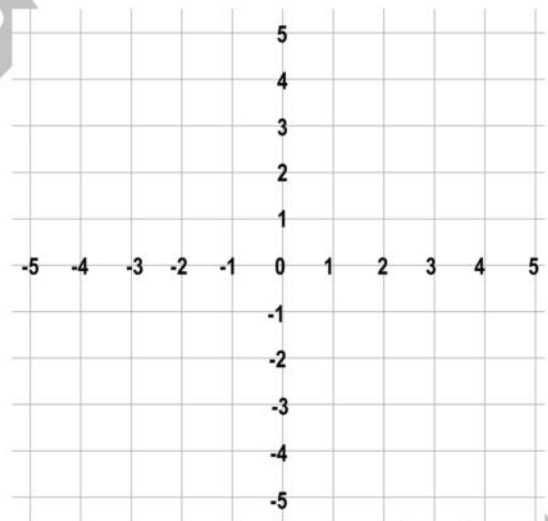
- 1 Which inequality expresses double the number x is greater than 5
- (a) $x > 5$ (b) $2x < 5$ (c) $2x > 5$ (d) $x < 5$
- 2 What is the image of the point $(2, -3)$ by translation 3 units downwards then 4 units right ?
- (a) $(-1, -1)$ (b) $(0, 6)$ (c) $(6, 0)$ (d) $(7, -1)$
- 3 Which of the following is on the scientific notation form
- (a) -0.6×10^{10} (b) $1.2 \times 10^{2.5}$ (c) -3.6×10^8 (d) 16×10^7
- 4 The multiplicative inverse of 5^{-2} is.....
- (a) -5^2 (b) -5^{-2} (c) 5^2 (d) 5^4
- 5 A rhombus with diagonal lengths of 8 feet and 10 feet has an area of.....feet²
- (a) 180 (b) 90 (c) 40 (d) 80
- 6 The image of the point $(4, -3)$ by reflection across the Y-axis is
- (a) $(4, 3)$ (b) $(-4, 3)$ (c) $(-4, -3)$ (d) $(4, -3)$
- 7 $(x + 2)(x - 2) = x^2 - \dots$
- (a) 4 (b) -4 (c) 1 (d) 0
- 8 The quotient of $18x^5y^3$ on $9x^3y^3$
- (a) $2x^2y^3$ (b) $2xy$ (c) $2x^2y$ (d) $2x^3y$
- 9 The probability of the impossible event =.....
- (a) zero (b) $\frac{1}{2}$ (c) \emptyset (d) 1

Solve the following :

- 1 Draw the line segment \overline{AB} which equals 6 cm then bisect it using a ruler and compass

- 2 Find the solution set in \mathbb{Z} for the following equation :
 $(x - 3)^3 = 1$

- 3 Draw \overline{AB} which A (2 , 1) , B(3 , 5)
then it's image by reflection
across the X-axis



- 4 A square with diagonal length = 10 cm
find it's area

- 5 Simplify :
 $3x(-2x) + 2x(x^2 - 5x + 1)$
then find the value when $(x = 1)$

- 6 Simplify :
 $\frac{2x \times 4y}{y - x}$ then find and find $x = -2$, $y = 3$

- 7 Simplify :
 $(x + 4y)(2x - 3y)$

4TH Model

Time : 2 hr
grade 7

Choose:

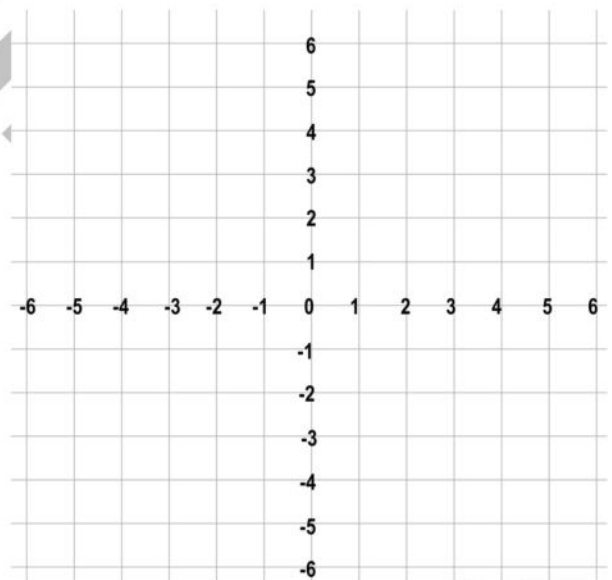
- 1 In the experiment of tossing a fair coin two consecutive times what is the number of times of appearance of one head at least ?
(a) 1 (b) 2 (c) 3 (d) 4
- 2 Trapezium with a height of 5.4 cm and the lengths of its parallel bases are 8 cm and 10 cm, has an area ofsquare centimeters.
(a) 48.6 (b) 54 (c) 97.2 (d) 432
- 3 If $7.5 \times 10^n = 0.000075$, what is the value of n ?
(a) -5 (b) -4 (c) 4 (d) 5
- 4 The quarter of 4^8 is.....
(a) 4^2 (b) 4^4 (c) 1^8 (d) 4^7
- 5 $(x^3 + x^2 + x) \div x = \dots\dots\dots$
(a) $x^3 + x^2$ (b) $x^2 + x$ (c) $x^2 + x + 1$ (d) 0
- 6 What is the image of the point (3, 4) by translation $(X, y) \rightarrow (X - 4, y - 2)$?
(a) (2, 1) (b) (1, -2) (c) (-1, 2) (d) (-1, -2)
- 7 $x^3 + 124 = -1$, what is the value of X ?
(a) -5 (b) -4 (c) 4 (d) 5
- 8 The solution set for the inequality $2x - 1 > 3$ in \mathbb{Z} is.....
(a) {3,5,7,...} (b) {3,2,1,...} (c) {2,1,0,...} (d) {3,4,...}
- 9 if $(y + 5)^2 = y^2 + ky + 25$ then k=.....
(a) 10 (b) 20 (c) -10 (d) -25

Solve the following :

- 1 Draw the line segment \overline{AB} which equals 6 cm then bisect it using a ruler and compass

- 2 A rhombus with diagonal lengths of 10 cm and 15 cm has an area of cm^2

- 3 Draw on the grid, the rectangle ABCD where A (1, 1) , B (3, 1) C (3, 6) , D (1, 6) then find its image by rotation R (O, 90°)



- 4 In an experiment of rolling a fair die once , what is the probability of obtaining :
(A) a number greater than 2 ?
(B) a prime number less than 4 ?

5 Simplify :

$$\left(\frac{14}{15}\right)^0 - \sqrt{\frac{9}{25}} + \sqrt[3]{\frac{64}{125}}$$

6 Simplify :

$$\frac{y \times y^4 \times y^5}{y^{-2} \times y^8}$$

7 Divide :
 $x^2 - 5x + 6$ by $x - 3$

5TH Model

Time : 2 hr
grade 7

Choose:

1 A card carrying a letter from the name (NORHAN) is drawn randomly , what is the probability that the letter is (N)?

a $\frac{1}{6}$

b $\frac{2}{5}$

c $\frac{1}{3}$

d $\frac{2}{3}$

2 $3^{-5} \times p = 1$ then the value of p =.....

a 3^5

b 5^{-3}

c 3^{-5}

d 5^3

3 $\sqrt{4} - \sqrt[3]{-8} = \dots\dots\dots$

a -4

b 4

c 8

d 0

4 if $x + y = 14$, $x - y = 7$, then $x^2 - y^2 = \dots\dots\dots$

a 2

b 98

c 21

d 6

5 $(8x^3 + 4x^2) \div 4x^2 = \dots\dots\dots$

a $3x^3$

b $2x$

c $2x + 1$

d $4x + 1$

6 What is the image of the point $(-1, 2)$ by translation $(O, 90^\circ)$ is

a $(-2, -1)$

b $(2, -1)$

c $(-1, -2)$

d $(1, 2)$

7 $x(x - 1) + x = \dots\dots\dots$

a $x^2 - x$

b x^2

c $x(2x - 1)$

d $2x^2$

8 One of the solutions for the inequality $3x - 2 > 4$ in \mathbb{Z} is.....

a 2

b 1

c 3

d -3

9 The area of a rhombus with side length 10 feet and height 8.6 feet is

a 68

b 0.86

c 860

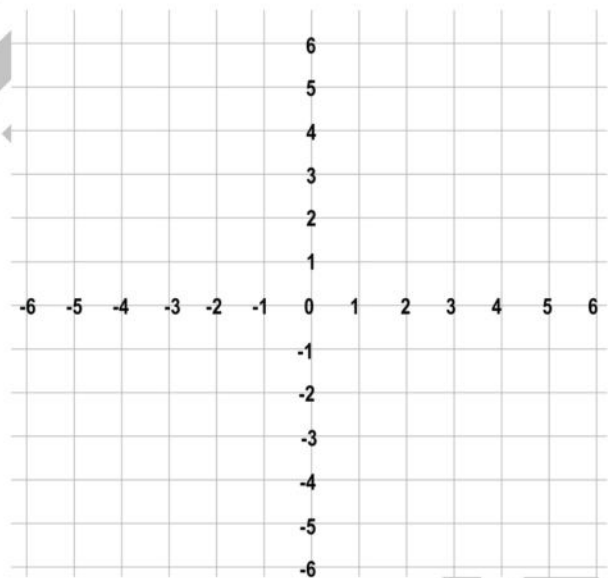
d 86

Solve the following :

1 if $2x^3 - 1 = 15$ then what is the value of x

2 Rhombus with diagonal lengths of 5 meter and 9 meter has an area of $\quad \text{m}^2$

3 Draw on the grid, the Triangle ABC where A(2 , 0), B(4 , 1), C(1 , 3), then find its image by reflection across y-axis



4 bag contains a red ball 6 blue balls and 3 green balls all balls are identical. a ball is drawn randomly from the bag and its colour is observed, find the probability at the drawn ball is :
(a) blue
(b) green
(c) blue or red

5 Write in scientific notation :

a) $26500000 =$

b) $480 \times 10^{12} =$

6 Simplify :
 $(2x + 3)(2x - 1)$

7 Divide:
 $x^2 - 8x + 15$ by $x - 3$

6TH Model

Time : 2 hr
grade 7

Choose:

1 which of the following can't be a probability of an event ?

(a) $\frac{1}{4}$

(b) $\frac{2}{5}$

(c) $\frac{1}{3}$

(d) $\frac{3}{2}$

2 $(-3)^4 =$

(a) 81

(b) -81

(c) 12

(d) -12

3 $-\sqrt{36} = \dots\dots\dots$

(a) -6

(b) 6

(c) 18

(d) ± 6

4 $(3x^2)(-2x) = \dots\dots\dots$

(a) $-6x^3$

(b) $-5x^3$

(c) $6x^3$

(d) x^3

5 $\frac{2x+b}{x+3} = 2$ then the value of b is $\dots\dots\dots$

(a) 6

(b) 5

(c) 3

(d) 2

6 What is the image of the point $(-2, 3)$ by Reflection across X-axis is $\dots\dots\dots$

(a) $(2, 3)$

(b) $(-2, -3)$

(c) $(2, -3)$

(d) $(3, -2)$

7 $(x+2)^2 = x^2 + \dots\dots\dots + 4$

(a) $4x^2$

(b) $4x$

(c) $-2x$

(d) $2x$

8 if $k \times 10^{-5} = 49 \times 10^{-6}$ then the value of k = $\dots\dots\dots$

(a) 49

(b) 0.49

(c) 4.9

(d) 0.049

9 a rhombus with area of 30 squared units then product of its diagonals = $\dots\dots\dots$

(a) 610

(b) 60

(c) 15

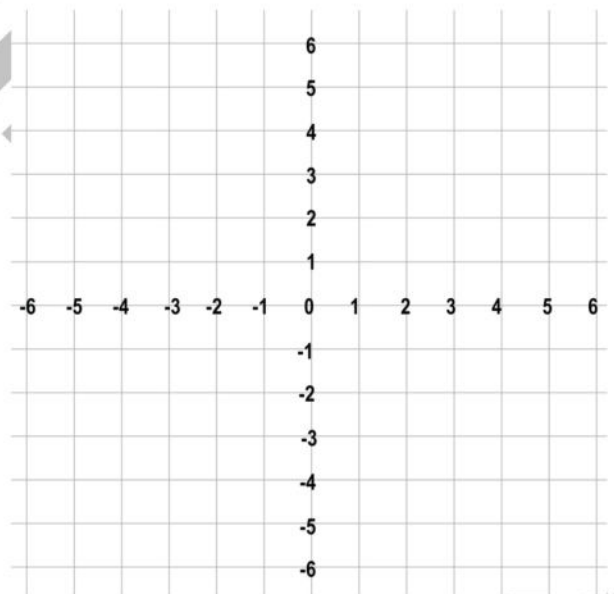
(d) 30

Solve the following :

1 if $2x^2 + 1 = 51$ then what is the value of x in \mathbb{N} ?

2 The solution set for the inequality $2x - 1 \geq 3$ in \mathbb{N} is.....

3 Draw on the grid , the Triangle ABC where A(2 , 0) , B(4 , 1) , C(1 , 3) , then find its image by translation (1,-2)



4 In an experiment of rolling a fair die once and observing the number that appears on the upper face write the sample space and then write each of the following events:

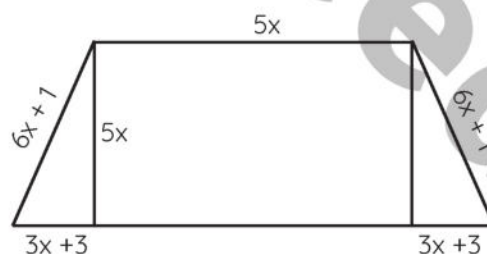
- (a) Event (A) is the event of appearing a odd number
- (b) Event (B) is the event of appearing a prime number
- (c) Event (C) is the event of appearing a number divisible by 2

- 5 Using Geometric Tools draw an angle with 100° then bisect it .

- 6 Simplify :

$$\frac{7^{-2} \times 7^3}{7^{-1}}$$

- 7 in the oppsite figure find the area of the shape in terms of x then find its value when $x = 4$.



7TH Model

Time : 2 hr
grade 7

Choose:

- 1 What is the image of the point (4 , 7) by Rotation $R(0, -90)$ is
- (a) (4 , -7) (b) (-7 , 4) (c) (7 , -4) (d) (-7 , -4)
- 2 Half of $2^{50} = 2^x$ then $x =$
- (a) 25 (b) 51 (c) 49 (d) 10
- 3 if $3 \times 10^n = 3$ millions , then $n =$
- (a) -6 (b) 6 (c) 18 (d) ± 6
- 4 $(x^2 - 2x - 35) \div (x + 5) = x - a$ then $a =$
- (a) 7 (b) -5 (c) 5 (d) -7
- 5 $(x + 5)(x - 5) = x^2 + bx + c$, then the value of $b + c =$
- (a) 0 (b) 10 (c) -25 (d) -10
- 6 What is the image of the point (-8 , 4) by Reflection across The Y-axis
- (a) (8 , -4) (b) (-8 , 4) (c) (4 , -8) (d) (8 , 4)
- 7 if $3x^2 - 1 = 26$ then $x =$
- (a) ± 9 (b) 3 (c) -3 (d) ± 3
- 8 for the inequality $x - 3 > -7$, then x can't be
- (a) -8 (b) 3 (c) -6 (d) -4
- 9 The area of a Square that it's diagonal = 10 cm is.....
- (a) 20 (b) 50 (c) 200 (d) 100

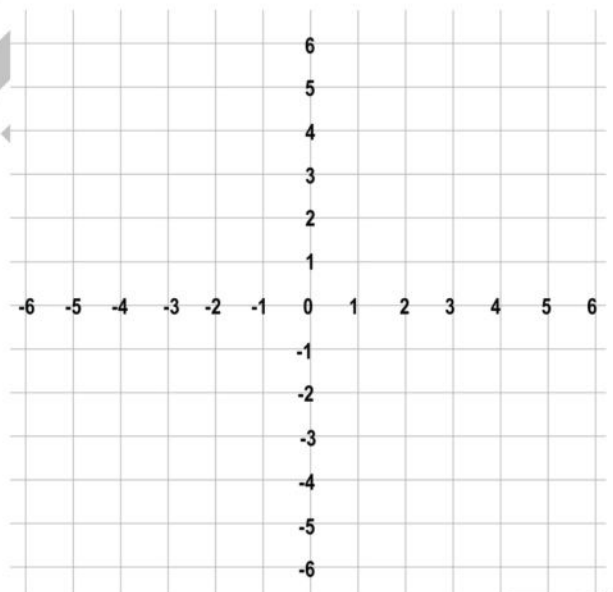
Solve the following :

- ① Using Geometric Tools draw an angle with 120° then bisect it .

- ② Simplify:

$$\sqrt[3]{\frac{125}{27}} \times \sqrt{\frac{81}{25}} \times \left(\frac{5}{9}\right)^{-1}$$

- ③ Draw on the grid , the Triangle ABC where A(1 , 1) , B(4 , 1) , C(3 , 5) , then find its image by translation (-5 , -3)



- ④ A bag contains 10 identical cards numbered from 1 to 10. One card is drawn at random and the number on the drawn card is observed. Write the following events :
- a) the drawn card has odd number on it
 - b) the drawn card has even number on it

- 5 Find the area of the trapezium the lengths of its parallel bases are 12 inches and 18 inches and its height of 5 inches.

- 6 Simplify :

$$\frac{(-5)^4 \times (-5)^6 \times (-5)^6}{(-5)^3 \times (-5)^{-3} \times (-5)^{14}}$$

- 7 The solution set for the inequality $5x + 3 \geq -12$ in \mathbb{Z} is

8TH Model

Time : 2 hr
grade 7

Choose:

- 1 What is the image of the point (2 , -3) by translating 3 units upwords is.....
- (a) (5 , 0) (b) (2 , 0) (c) (5 , -6) (d) (5 , -3)
- 2 $2x^4 \times 3x^n = 6x^{12}$ then $x =$
- (a) 8 (b) 6 (c) 5 (d) 3
- 3 The edge length of a cube that it's lateral area = 54 cm^2 is
- (a) 9 (b) 3 (c) 4 (d) 2
- 4 if $\frac{100}{x} = \frac{x^2}{10}$ then $x =$
- (a) 10 (b) 20 (c) 5 (d) 100
- 5 $\frac{52A^5}{y} = 4A^3$ then $y =$
- (a) $13A^3$ (b) $13A^2$ (c) A^4 (d) $3A^8$
- 6 The area of a trapezium which it's middel base = 18 cm and it's height = 5 cm is
- (a) 190 (b) 90 (c) 80 (d) 70
- 7 The area of a square which it's diagonal length = 10 cm is
- (a) 100 (b) 15 (c) 30 (d) 60
- 8 For the inequality $2x - 1 \leq 9$, then $x =$
- (a) 9 (b) 5 (c) 10 (d) 16
- 9 The area of a Square that it's diagonal = 10 cm is..... cm^2
- (a) 20 (b) 50 (c) 200 (d) 100

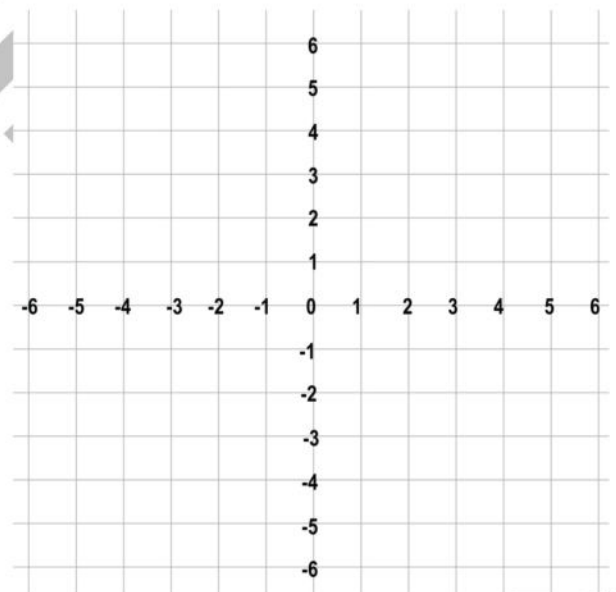
Solve the following :

- ① Using Geometric Tools draw an angle with 130° then bisect it .

- ② Simplify:

$$\sqrt[3]{\frac{1}{8}} + \sqrt{\frac{1}{4}} - 1$$

- ③ Draw on the grid , the Triangle ABC where A(-1 , 2) , B(-1 , 5) , C(2 , 5) , then find its image by reflection across X-axis.



- ④ A bag contains 15 identical cards numbered from 1 to 15. One card is drawn at random and the number on the drawn card is observed. Write the following events :
- a) the drawn card has a factor of 12 number on it .
 - b) the drawn card has even number greater than 10 on it.

5 Divide:

$(x^2 - 2x - 15)$ by $(x - 5)$

6 Simplify :
 $(2A + B)^2 - 4AB$

7 The solution set for $2x^2 - 1 = 49$ is

9TH Model

Time : 2 hr
grade 7

Choose:

- 1 What is the image of the point (2 , -3) by Reflection across the origin point O is.....
- (a) (2 , 3) (b) (2 , -3) (c) (-2 , -3) (d) (-2 , 3)
- 2 $5a^0 - (5a)^0 = \dots\dots\dots$
- (a) 5 (b) 0 (c) 1 (d) 4
- 3 The total area of a cube that it's lateral area = 54 cm^2 is
- (a) 9 (b) 3 (c) 4 (d) 2
- 4 If the probability of a student success is 82 % then the probability of failure is =.....%
- (a) 12 (b) 15 (c) 17 (d) 100
- 5 if $(a + b)^2 = a^2 + x + b^2$, then $x = \dots\dots\dots$
- (a) 3 (b) 7 (c) 6 (d) 5
- 6 The area of the trapezium the lengths of its parallel bases are 8 cm and 10 cm and its height of 8 cm is cm^2
- (a) 108 (b) 90 (c) 72 (d) 100
- 7 if The area of a square = 32 cm^2 then it's diagonal length = cm
- (a) 8 (b) 9 (c) 16 (d) 4
- 8 For the inequality $2x + 1 \leq 9$, then $x = \dots\dots\dots$
- (a) 2 (b) 7 (c) 6 (d) 5
- 9 A cube it's volume = 125 cm^3 then it's Total area = cm^2
- (a) 150 (b) 5 (c) 25 (d) 100

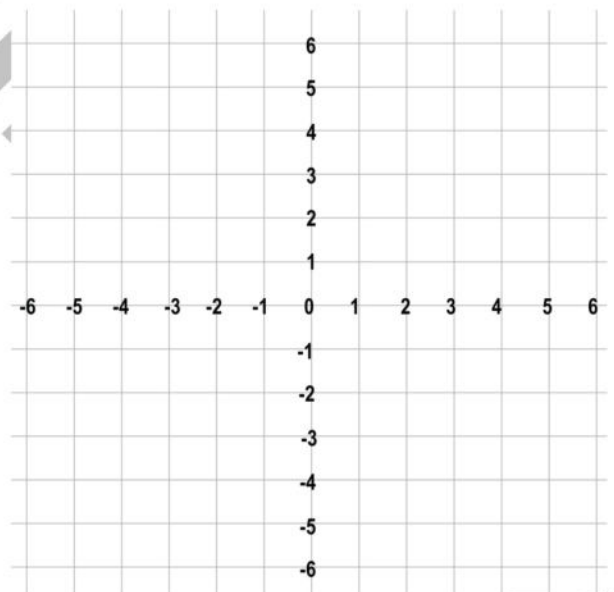
Solve the following :

- 1 Using Geometric Tools draw an angle with 80° then bisect it .

- 2 Simplify:

$$\sqrt{\frac{9}{16}} \times \left(\frac{3}{2}\right)^{-2} \times \left(\frac{1}{9}\right)^0$$

- 3 Draw on the grid , the Triangle ABC where A(5 , 1) , B(5, 5) , C(1, 1) ,then find its image by reflection across X-axis.



- 4 A bag contains 15 identical cards numbered from 1 to 15. One card is drawn at random and the number on the drawn card is observed. Write the following events :
- a) the drawn card has a prime number on it .
 - b) the drawn card has even number on it.

5 Divide:

$$(22x^2y^6 + 20x^4y^6) \text{ by } (2x^2y^2)$$

6 Simplify :
 $(x+y)^2 - 2xy$

7 Which is greater in Area ?
A Square with a diagonal length 10 cm .
OR
A Rhombus it's diagonals lengths are 6cm , 8 cm.

10TH Model

Time : 2 hr
grade 7

Choose:

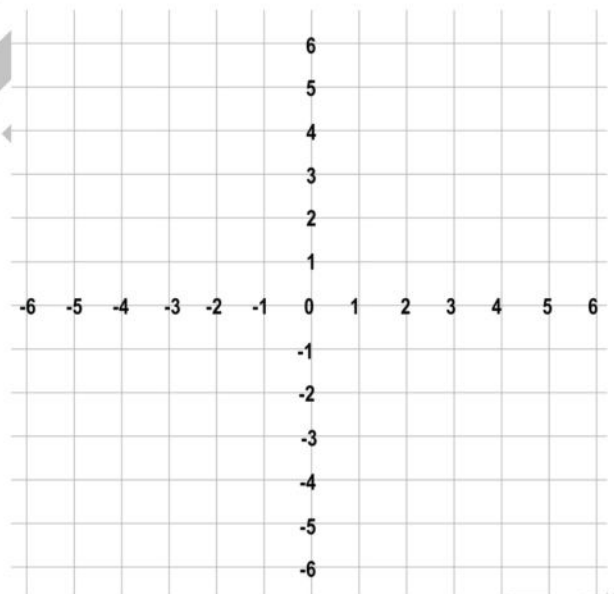
- 1 the Standard notation for the number -3.5×10^4 is
- a 0.000035 b -350000 c 0.00035 d -35000
- 2 The multiplicative inverse of 5^{-2} is.....
- a -5^2 b -5^{-2} c 5^2 d 5^4
- 3 The Sum of the two roots of the number 49 =.....
- a 14 b -14 c 49 d 0
- 4 The inequality That represents " double the number x is less than 5 "is.....
- a $2x > 5$ b $2x < 5$ c $x > 30$ d $2+x < 5$
- 5 $20y^6 \div 4y^2 = \dots\dots\dots$
- a $5y^3$ b $5y^4$ c $5y$ d $5y^{12}$
- 6 if $a = \frac{-2}{3}$, $b = 2$, then $a^b = \dots\dots\dots$
- a $\frac{4}{6}$ b $\frac{-4}{9}$ c $\frac{4}{9}$ d $\frac{9}{4}$
- 7 A rhombus with base length = 8 cm , and height of 3 cm has an area ofcm²
- a 38 b 24 c 16 d 12
- 8 for the inequality $3x < 12$, then $x = \dots\dots\dots$
- a 2 b 7 c 10 d 5
- 9 What is the image of the point (-2, 5) by translation $(X, y) \longrightarrow (X+1, y + 4)$?
- a (9, -1) b (2, 5) c (-1, 9) d (-3, 4)

Solve the following :

- 1 Draw the line segment \overline{AB} which equals 6 cm then bisect it using a ruler and compass.

- 2 Simplify:
$$\left(\frac{1}{2}\right)^2 - \sqrt{\frac{1}{4}} + \left(\frac{1}{3}\right)^{-2}$$

- 3 Draw on the grid, the Triangle ABC where A(5 , 1) , B(5, 5) , C(1, 1) , then find its image by reflection across X-axis.



- 4 In an experiment of forming a 2-digit number from the set of numbers {3,4,6,7} :
- a) Write The sample Space
 - b) The probability of getting a number it's tens digit is even.
 - c) The probability of getting a number divisible by 3.

- 5 Find the value of x in :

$$x^3 - 1 = 7$$

- 6 Simplify :

$$4x(3x^2 + 2x + 7) - 8x^2$$

- 7 Find the Area of :

a) A Square with a diagonal length $(3x + 3)$ cm .

حمل الآن

مجاناً وحصرياً

امتحانات رقم (5)

الترم الثاني



MODEL EXAM NO (1)**[1]****[A] Choose the correct answer:**

(1) In the experiment of throwing a coin twice, how many time of appearing a head at least?

- a) 1 b) 2 c) 3 d) 4

(2) Quarter of the number of 4^8 is

- a) 4^2 b) 4^4 c) 4^6 d) 4^{16}

(3) The height of a trapezium is 5.4 cm, and the length of its two parallel bases are 8 cm , 10 cm, then its area equals cm^2

- a) 84.6 b) 54 c) 97.2 d) 432

[B] Simplify to the simplest form:

$$\sqrt[3]{\frac{64}{125}} + \sqrt{\frac{9}{25}} - \left(\frac{14}{10}\right)^0$$

[2]**[A] Choose the correct answer:**

(1) If $0.000075 = 5 \times 10^n$, then the value of n is

- a) - 5 b) - 4 c) 4 d) 5

(2) $(X^3 + X^2 + X) \div X = \dots\dots\dots$

- a) $X^3 + X^2$ b) $X^2 + X$ c) $X^2 + X + 1$ d) Zero

(3) The image of point (3,4) with translation $(x,y) \rightarrow (x-4,y-2)$?

- a) (-1,-2) b) (-1,2) c) (1,-2) d) (2,1)

[B] Find the solution set of the following equation in Q:

$$(3X - 4)(3X + 4) - 9X^2 + 2X = 6$$

[3]

[A] Choose the correct answer:

(1) If $X^3 + 124 = -1$, then the value of X is

- a) -5 b) -4 c) 4 d) 5

(2) The image of the point $(-2, 4)$ with reflection in X-axis?

- a) $(4, 2)$ b) $(-4, 2)$ c) $(2, 4)$ d) $(-2, -4)$

(3) The area of rhombus whose diagonals 10 cm, 15 cm is Cm^2

- a) 37.5 b) 75 c) 150 d) 300

[B] Draw the line segment of length 4.5 cm and bisect it with compasses and ruler.

[4]

[A] If the quotient of dividing $X^3 - 25X$ by $X + 5$ is $X^2 + aX$, find the value of X? where $X \neq -5$.

[B] Find the solution set of the following inequality in N:

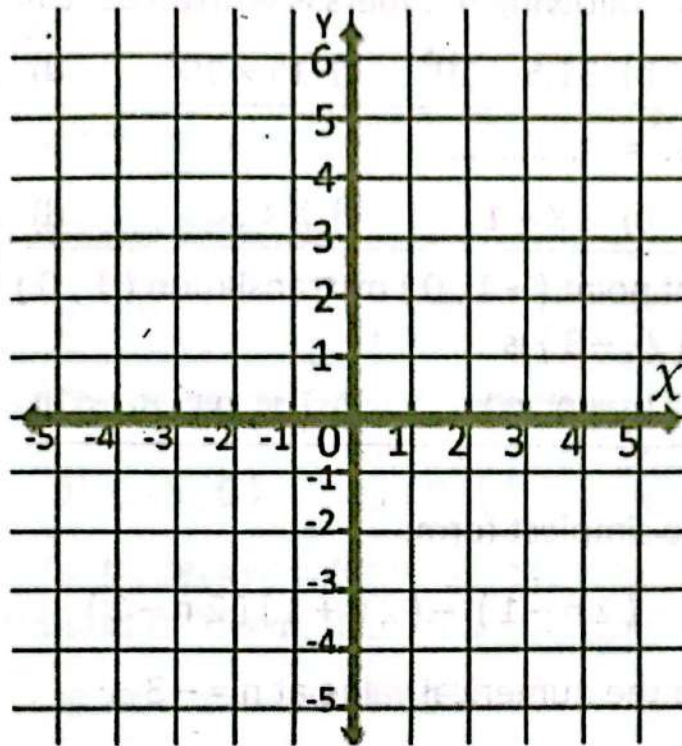
$$3X - 2 \leq 4$$

[5]

[A] On the coordinate plane draw the rectangle ABCD in which:

$$A(1, 1), B(3, 1), C(3, 6), D(1, 6)$$

Then find its image with rotation $R(O, 90^\circ)$



[B] In the experimental of throwing a regular die once, find the probability of appearing:

① A number more than 2.

② A prime number less than 4.



End of the questions

MODEL EXAM NO (2)**[1]****[A] Choose the correct answer:**

(1) Which of the following numbers is written as scientific notation

- a)
- $1.5 \times 10^{4.5}$
- b)
- 31.5×10^5
- c)
- 15×10^5
- d)
- 3.15×10^5

(2) $(X^3 + X^2) \div X^2 = \dots\dots\dots$

- a) X b)
- $2X + 1$
- c)
- $X + 1$
- d) Zero

(3) The image of point $(-1, 0)$ by translation $(1, 0)$ following by translation $(2, -3)$ is

- a)
- $(2, -3)$
- b)
- $(0, 0)$
- c)
- $(1, 0)$
- d)
- $(-1, 0)$

[B] Simplify in the simplest form:

$$(2n-1)^2 - (2n+1)(2n-1)$$

Then find the numerical value at $n = -3$ **[2] [A] Choose the correct answer:**

(1) The probability of appearing an even number when throwing a fair die once is

- a)
- $\frac{1}{2}$
- b)
- $\frac{2}{3}$
- c)
- $\frac{3}{4}$
- d)
- $\frac{5}{6}$

(2) $\sqrt{16 + 9} = 4 + \dots\dots\dots$

- a) 3 b) 2 c) 1 d) Zero

(3) The area of square whose diagonal 6 cm is cm^2

- a) 9 b) 18 c) 24 d) 36

[B] Simplify to the simplest form:

$$\sqrt[3]{\frac{125}{27}} + \sqrt{\frac{81}{25}} - \left(\frac{9}{5}\right)^0$$

[3]

[A] Choose the correct answer:

(1) Double the number 2^{10} is

- a) 2^{20} b) 2^{11} c) 4^{20} d) 4^{10}
-

(2) The image of the point $(5, 0)$ with reflection in X-axis?

- a) $(5, 0)$ b) $(-5, 0)$ c) $(0, 5)$ d) $(0, -5)$
-

(3) The height of a trapezium is 5 cm, and the sum of lengths of its two parallel bases is 16 cm, then its area equals cm^2

- a) 20 b) 40 c) 80 d) 60
-

[B] Draw angle of measure 100° and bisect it with ruler and compasses.

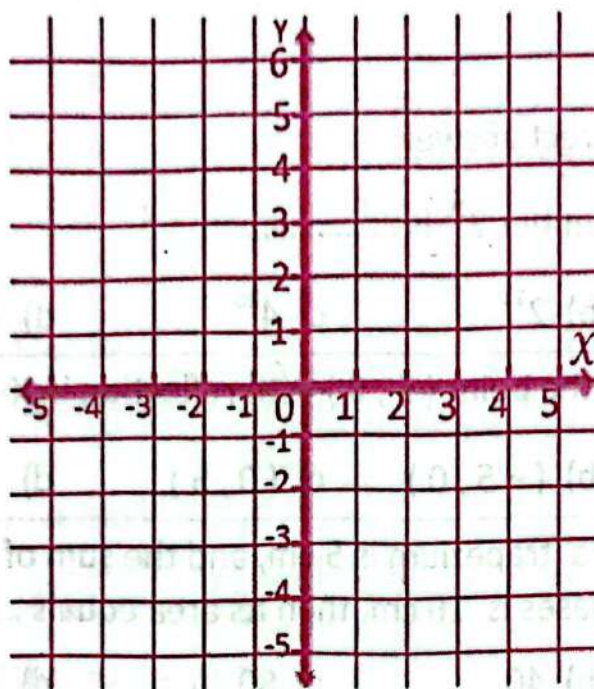
[4]

[A] Find the quotient of dividing $-3X^2 + X^3 - X + 6$ by $X - 2$, then find the numerical value at $X = 3$?

[B] Find the solution set of the following inequality in Q?

$$3(X - 7) \geq 7(X - 3)$$

[5]

[A] On the coordinate plane:Draw the $\triangle ABC$ in which $A(1, -2)$, $B(4, -4)$, $C(3, -1)$ Then find its image with rotation $R(O, -90^\circ)$ 

[B] A card is drawn randomly from eight cards numbered from 1 to 8, write the sample space and find the probability of the following events:

- ① Appearing an even number.
- ② Appearing a number divisible by 3.
- ③ Appearing a number more than or equal 6

*End of the questions*

MODEL EXAM NO (3)**[1]****[A] Choose the correct answer:**

(1) The probability of appearing a number 6 when throwing a fair die once is

- a) 1 b) Zero c) $\frac{1}{2}$ d) $\frac{1}{6}$

(2) $2^3 + 2^3 =$

- a) 2^6 b) 2^9 c) 2^4 d) 4^6

(3) If the area of rhombus is 20 cm^2 , and one of its diagonal is 5 cm, then the **length** of other diagonal is

- a) 4 b) 8 c) 10 d) 15

[B] Find in the simplest form:

$$\left(\frac{5^3 \times 5^{-2}}{5^4 \times 5^{-1}} \right)^{-2}$$

[2] [A] Choose the correct answer:

(1) If $-\sqrt{25} = \sqrt[3]{y}$, then the value of Y =

- a) -5 b) -125 c) 5 d) 125

(2) $(3X - 7)^2 = aX^2 + bX + c$, then value of b is

- a) 21 b) 42 c) -21 d) -42

(3) If the image of the point $(7, 3a - 12)$ with reflection on X-axis is itself, then the value of a is

- a) -4 b) 3 c) 4 d) 12

[B] Find the solution set of the following equation in \mathbb{Q} :

$$(2X - 5)^2 + 20X = 50$$

[3]

[A] Choose the correct answer:

(1) Third of the number 3^x is.....

- a) 1^x b) $(\frac{1}{3})^x$ c) 3^{x+1} d) 3^{x-1}
-

(2) The image of the point $(-2, 1)$ is $(4, -5)$ with translation ...

- a) $(6, -6)$ b) $(2, -4)$ c) $(-6, -4)$ d) $(-6, 6)$
-

(3) The length of diagonal of the square whose area 450 cm^2 is

- a) 15 cm b) 30 cm c) 40 cm d) 90 cm
-

[B] Draw a line segment f length 6 cm and bisect it with ruler and compasses.

[4]

[A] Find the quotient of dividing $12 - 5X^2 + 6X^3 - 14X$ by $2X - 3$.

[B] Find the solution set of the following inequality in \mathbb{Z} ?

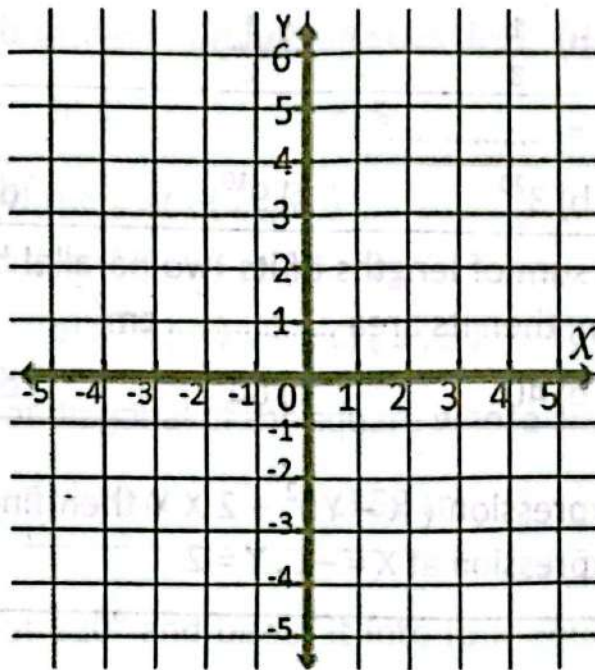
$$5X + 1 \leq 2(X + 2)$$

[5]

[A] In the coordinate plane:

Draw $\triangle ABC$ in which $A(0, 2)$, $B(4, 1)$, $C(3, 4)$

Then find its image by rotation $R(O, 180^\circ)$ following by rotation $R(O, 90^\circ)$



[B] From the following numbers $\{1, 2, 3, 4\}$ form a number of two different digits. Write the sample space and find the probability of following events:

- ① The tens digit is odd number
- ② Sum of two digits is 7
- ③ The number is divisible by 7

◆◆◆

End of the questions

MODEL EXAM NO (4)**[1]****[A] Choose the correct answer:**

(1) The probability of appearing an odd number when throwing a fair die once is

- a) 2 b) $\frac{1}{3}$ c) $\frac{1}{2}$ d) $\frac{1}{6}$

(2) $3^{10} + 3^{10} + 3^{10} = \dots\dots\dots$

- a) 3^{10} b) 3^{20} c) 9^{10} d) 3^{11}

(3) In trapezium, sum of lengths of its two parallel bases is 16 cm, its height 5 cm, then its area cm^2

- a) 20 b) 40 c) 80 d) 160

[B] Simplify the expression $(X - Y)^2 + 2XY$ then find the numerical value of the expression at $X = -1$, $Y = 2$

[2]**[A] Choose the correct answer:**

(1) $\sqrt{36} + \sqrt{16} = \sqrt{\dots\dots\dots}$

- a) 10 b) 52 c) 100 d) 120

(2) If $X + Y = 15$, $X - Y = 5$, then the value of $X^2 - Y^2 = \dots\dots\dots$

- a) 75 b) 20 c) 10 d) 3

(3) If the image of the point $(2, -3)$ with reflection on X-axis following by reflection in Y-axis is

- a) $(2, 3)$ b) $(-2, -3)$ c) $(-2, 3)$ d) $(3, 2)$

[B] Find the solution set of the following equation in Q:

$$\sqrt[3]{x} - 5 = 1$$

[3]

[A] Choose the correct answer:

(1) The greatest integer number satisfies the inequality $3 \leq X < 6$ is.

- a) 3 b) 4 c) 5 d) 6

(2) The image of the point $(2, -1)$

With translation $(X, Y) \rightarrow (X - 3, Y + 4)$ is

- a) $(-1, 5)$ b) $(-3, 4)$ c) $(5, 3)$ d) $(-1, 3)$

(3) The length of diagonal of the square whose area 50 cm^2 is

- a) 5 cm b) 10 cm c) 50 cm d) 100 cm

[B] Draw angle of 120° and bisect it into four equal parts with ruler and compasses.

[4]

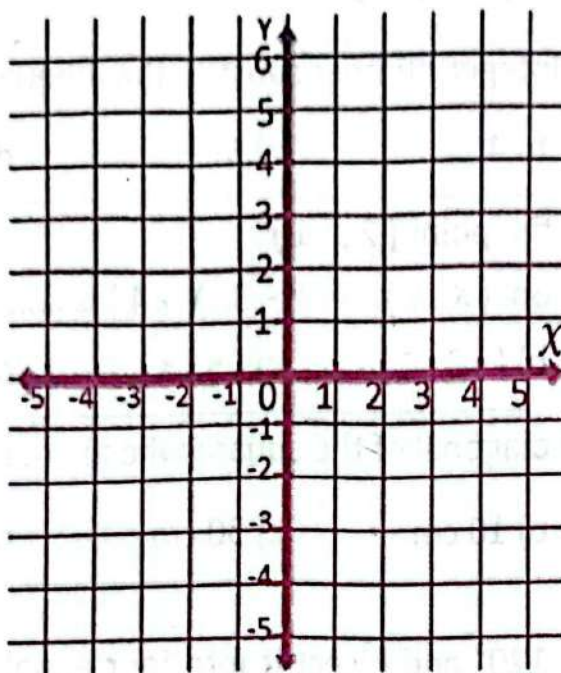
[A] The area of rectangle $35X^6 - 15X^5 + 40X^2$ square units, one of its dimensions is $5X^2$ unit length. Find the other dimension.

[B] Find the solution set of the following inequality in Z?

$$\frac{1}{2}X + 4 \geq -2$$

[5]

[A] In the coordinate plane:

Draw $\triangle ABC$ in which $A(-2, 1)$, $B(2, 1)$, $C(0, 3)$ Then find its image by rotation $R(O, 90^\circ)$.

[B] A card is drawn randomly from 25 cards numbered from 1 to 25,

find the probability that the card has:

① An even number

② A number divisible by 5

③ A number ≥ 20 *End of the questions*

MODEL EXAM NO (5)[1][A] Choose the correct answer:

(1) Which of the following may be a probability of an event?

- a) 1.2 b) -0.4 c) 275 % d) 75 %

(2) If $2^x = 5$, then $2^{x+1} = \dots\dots\dots$

- a) 6 b) 7 c) 10 d) 64

(3) In trapezium, the lengths of one of two parallel bases is 15 cm, its height 5 cm, its area 108 cm^2 , then the length of other base is $\dots\dots\dots \text{ cm}^2$

- a) 15 b) 4 c) 12 d) 27

[B] Write the result in scientific notation:

$$(9.3 \times 10^7) - (0.8 \times 10^8)$$

[2] [A] Choose the correct answer:

(1) Which inequality represents that twice number X is less than 5

- a)
- $2X < 5$
- b)
- $2X > 5$
- c)
- $X - 2 < 5$
- d)
- $X + 2 < 5$

(2) The image of the point $(0, -3)$ With translation $(X, Y) \rightarrow (X - 1, Y + 2)$ is $\dots\dots\dots$

- a)
- $(-1, -1)$
- b)
- $(-1, 1)$
- c)
- $(1, -1)$
- d)
- $(1, 1)$

(3) If the area of rhombus is 40 cm^2 , and one of its diagonal is 10 cm, then the length of other diagonal is $\dots\dots\dots$

- a) 80 b) 50 c) 4 d) 8

[B] Draw ΔABC , $AB = AC = 6$ cm, $BC = 7$ cm by using ruler and compasses.

[3]

[A] Choose the correct answer:

(1) $\sqrt{100 - 64} = 10 - \dots\dots\dots$

- a) -4 b) -6 c) 4 d) 6
-

(2) If $(X + 3)(X - 3) = X^2 - K$, then the value of K is

- a) 9 b) 6 c) -9 d) -6
-

(3) The image of point $(-4, 2)$ with rotation $R(O, 90^\circ)$ is

- a) $(-4, -2)$ b) $(4, 2)$ c) $(-2, 4)$ d) $(-2, -4)$
-

[B] Find the quotient of dividing $X^2 - 7X + 10$ by $(X - 2)$

[4]

[A] Find the solution set of the following equation in \mathbb{Q} ?

$$(3X - 4)(3X + 4) - 9X^2 + 2X = 6$$

[B] Find the solution set of the following inequality in \mathbb{Q} ?

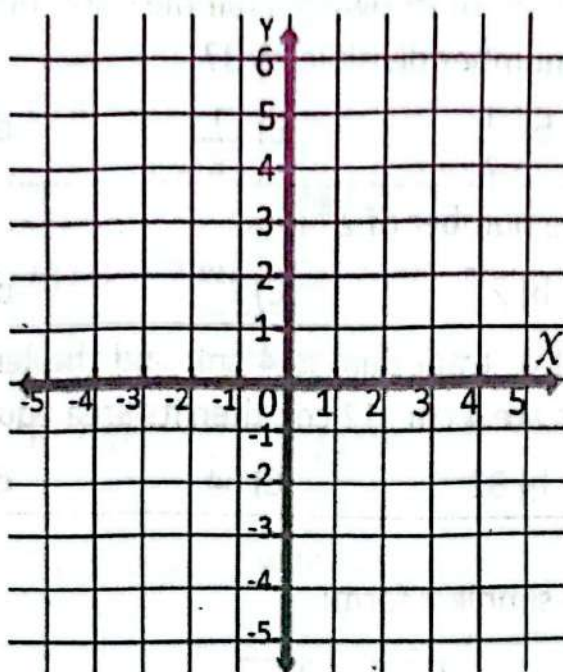
$$2 - 3(X - 5) \geq X + 7$$

[5]

[A] In the coordinate plane:

Draw $\triangle ABC$ in which $A(-2, 1)$, $B(2, 1)$, $C(0, 3)$

Then find its image by reflection in X-axis.



[B] A bag contains 4 green balls, 5 red balls, 6 black balls, all balls are identical size. A ball is drawn randomly, find the probability that the drawn ball is:

- ① Black ② Green
③ White ④ Any color



End of the questions

MODEL EXAM NO (6)[1][A] Choose the correct answer:

(1) In the experiment of throwing a fair die once, how many time of appearing number divisible by 3?

- a) $\frac{1}{3}$ b) $\frac{1}{2}$ c) $\frac{1}{6}$ d) $\frac{2}{3}$

(2) Quarter of the number of 2^{20} is

- a) 2^5 b) 2^{10} c) 2^{19} d) 2^{18}

(3) The height of a trapezium is 4 cm, and the length of its two parallel bases are 4 cm , 12 cm, then its area equals cm^2

- a) 128 b) 32 c) 64 d) 16

[B] Simplify to the simplest form:

$$\sqrt[3]{\frac{125}{27}} + \sqrt{\frac{25}{4}} - \left(\frac{3}{2}\right)^2$$

[2][A] Choose the correct answer:

(1) $39 \times 10^{-8} = K \times 10^{-7}$, then the value of K =

- a) 39 b) 3.9 c) 0.39 d) 0.039

(2) $\left(\frac{x^4+x^3+x^2}{x^2}\right) = \dots\dots\dots$

- a) $X^3 + X^2$ b) $X^2 + X$ c) $X^2 + X + 1$ d) Zero

(3) The image of point (3,4) with translation $(x, y) \rightarrow (x+1, y)$?

- a) (2,4) b) (4,2) c) (4, 4) d) (4, 1)

[B] Simplify the expression $(2X - 3)(2X + 3) + 9$ then find the numerical value when $X = 10$

[3]

[A] Choose the correct answer:

(1) $\sqrt[3]{\sqrt{64}} = \dots\dots\dots$

a) 2

b) 4

c) 8

d) 64

(2) The image of the point $(0, 7)$ with reflection in Y-axis?

a) $(0, 7)$

b) $(0, -7)$

c) $(7, 0)$

d) $(-7, 0)$

(3) The area of square whose diagonal 10 cm..... Cm^2

a) 50

b) 100

c) 150

d) 200

[B] Draw angle 120° and bisect it with compasses and ruler.

[4]

[A] If the quotient of dividing $X^2 - X - 12$ by $X - 4$ where $X \neq 4$

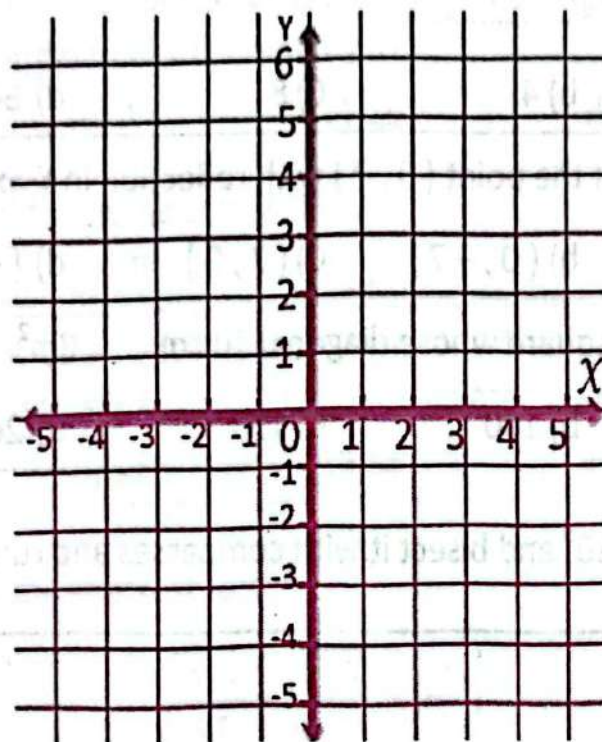
[B] Find the solution set of the following inequality in \mathbb{Q} :

$$3 - 2X \leq 7$$

[5]

[A] On the coordinate plane draw the triangle ABC in which:

$$A(1, 1), B(5, 1), C(5, 6)$$

Then find its image with rotation $R(O, 180^\circ)$ 

[B] In the experimental of throwing a regular die once, find the probability of appearing:

- ① A number more than 6
- ② A number satisfies the inequality $1 \leq X \leq 6$
- ③ A number satisfies the inequality $2 < X < 4$

*End of the questions*

MODEL EXAM NO (7)[1][A] Choose the correct answer:

(1) Which of the following numbers isn't as scientific notation?

- a)
- 2.35×10^7
- b)
- 23.5×10^7
- c)
- 3.5×10^5
- d)
- 3.5×10^{-6}

(2) $2^x + 2^x = \dots\dots\dots$

- a)
- 4^{2x}
- b)
- 2^x
- c)
- 2^{x+1}
- d)
- 2^{2x}

(3) The area of a trapezium is 100 cm^2 , and its height 5 cm then the length of its middle base equals cm

- a) 10 b) 15 c) 20 d) 95

[B] Simplify to the simplest form:

$$(X+Y)^2 + (X+2Y)(X-2Y)$$

[2][A] Choose the correct answer:(1) If $a + 3b = 7$, $c = 3$, then the value of $a + 3(b + c) = \dots\dots\dots$

- a) 10 b) 13 c) 15 d) 16

(2) The probability of appearing a number is divisible by 2 when throwing a fair die once is

- a) Zero b)
- $33\frac{1}{3}\%$
- c) 50% d) 75%

(3) The image of point $(-a, b)$ with reflection in X-axis is

- a)
- (a, b)
- b)
- (b, a)
- c)
- $(a, -b)$
- d)
- $(-a, -b)$

- [B] Put the following expression in the simplest form then find its numerical value at $a = 2$

$$\frac{(a)^{-3} \times (a)^{-5} \times (-a)^4}{(a)^2 \times (a)^{-4} \times (a)^6}$$

[3]

- [A] Choose the correct answer:

(1) $|\sqrt[3]{-125}| = \sqrt{\dots \dots \dots}$

- a) 5 b) -5 c) 25 d) -25
-

- (2) The image of the point $(-4, 1)$

With translation $(X, Y) \rightarrow (X+1, Y-4)$ is

- a) $(-5, 4)$ b) $(-5, 5)$ c) $(-3, 3)$ d) $(2, -8)$
-

- (3) The area of rhombus is 40 cm^2 and one of its diagonals is 10 cm , then the length of other diagonal is cm

- a) 4 b) 6 c) 8 d) 16
-

- [B] Draw $\triangle ABC$ in which $AB = 5 \text{ cm}$, $m(\angle A) = 60^\circ$, $m(\angle B) = 70^\circ$
-

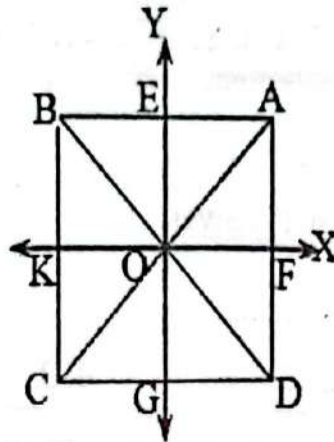
[4]

[A]

Find the solution set of the following inequality in Q :

$$2 - 3(X - 5) \geq X + 7$$

[B] In the opposite figure:



ABCD is square, F,G,K,E are midpoint of its sides, Find:

- ① Image of $\triangle AOF$ with reflection in X-axis
- ② Image of $\triangle AOF$ with rotation $R(O, 90^\circ)$

[5]

[A] If the quotient of dividing $X^3 - 8$ by $X - 2$ where $X \neq 2$

[B] In the experimental of throwing a coin twice, find the probability of appearing:

- ① A head twice
- ② A head at least one time



End of the questions

MODEL EXAM NO (8)**[1]****[A] Choose the correct answer:**

(1) $3^{-1} + 3^{-1} + 3^1 = \dots\dots\dots$

- a)
- 3^{-2}
- b)
- 3^{-3}
- c)
- 9^{-3}
- d) 1

(2) The height of a trapezium is 5 cm, and the sum of lengths of its two parallel bases is 16 cm, then its area equals cm^2

- a) 20 b) 40 c) 80 d) 160

(3) Which of the following may a probability of an event?

- a) 1.2 b) - 0.4 c) 215 % d)
- $\frac{2}{3}$

[B] Simplify to the simplest form then find the numerical value at $X=2$

$$(X-1)^2 - X(X+2)$$

[2]**[A] Choose the correct answer:**(1) If a , b are two roots for number C, then $a + b = \dots\dots\dots$

- a) 2 a b) 2 b c) 1 d) 0

(2) $0.000073 = \dots\dots\dots$

- a)
- 7.3×10^6
- b)
- 7.3×10^5
- c)
- 7.3×10^{-6}
- d)
- 7.3×10^{-5}

(3) Which of the following points its image by reflection in X-axis is itself?

- a) (2 , -3) b) (2 , 3) c) (0 , 3) d) (2 , 0)

[B] Find the solution set of the following equation in Z:

$$(X - 1)^3 + 2 = -6$$

[3]

[A] Choose the correct answer:

(1) If $(X + 4)(X - 3) = X^2 + K - 12$, then the value of K is

a) $-X$

b) X

c) $-7X$

d) $7X$

(2) The image of the point $(-1, 4)$ with translation $(0, 2)$ following by $(2, 0)$ is

a) $(2, 2)$

b) $(-2, -2)$

c) $(4, 3)$

d) $(3, 4)$

(3) The area of rhombus is 100 cm^2 , then the product of lengths of its two diagonals is

a) 25

b) 50

c) 100

d) 200

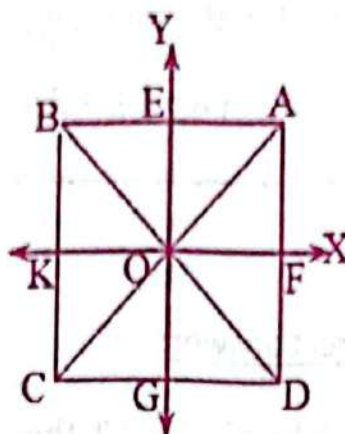
[B] Draw $\triangle ABC$ in which $AB = 5 \text{ cm}$, $BC = 4 \text{ cm}$, $m(\angle B) = 70^\circ$

[4]

[A] Find the solution set of the following inequality in Q:

$$\frac{1}{2}X + 4 \geq 3$$

[B] In the opposite figure:



ABCD is square, F,G,K,E are midpoint of its sides, Find:

- ① Image of $\triangle AOB$ with reflection in Y-axis
- ② Image of $\triangle AOB$ with rotation $R(O, 180^\circ)$

[5]

[A] If the quotient of dividing $X^3 + X + 10$ by $X + 2$ is $X^2 + aX$

Where $X \neq -2$.

[B] A classroom with 15 students, some of whom have black hair, some with brown hair, and some with yellow hair. If a student is chosen at random, find the probability that the student:

- ① Has black hair,
- ② Has non-brown hair,
- ③ Has yellow hair, or has brown hair.



End of the questions

MODEL EXAM NO (9)**[1]****[A] Choose the correct answer:**

(1) If $Y = \left(\frac{1}{2}\right)^X$, $X \in \{0, 1, 2, 3\}$, then Y has greatest value at
Y =

- a) Zero b) 1 c) 2 d) 3

(2) If the area of square is 18 cm^2 , then its diagonal is Cm

- a) 6 b) 18 c) 36 d) 160

(3) If A is an event from a random experiment with equal chances of occurring and the probability of event A is 40% and the number of elements in the sample space is 15 elements, then the number of elements of event A is equal to...

- a) 2 b) 4 c) 6 d) 10

[B] Simplify to the simplest form then find numerical value at $X = -1$

$$(X - 4)^2 - (X + 4)(X - 4)$$

[2] [A] Choose the correct answer:

(1) If $a \cdot b = 3$, $(a + b)^2 = 16$, then $a^2 + b^2 = \dots\dots\dots$

- a) 10 b) 13 c) 48 d) $5\frac{1}{3}$

(2) If the speed of light is 300000 km/sec, then the speed in m/sec equals

- a) 3×10^5 b) 3×10^7 c) 3×10^8 d) 3×10^{10}

(3) The image of point $(3, -2)$ is $(-3, 2)$ with rotation

- a) $R(O, 180^\circ)$ b) $R(O, 270^\circ)$ c) $R(O, 90^\circ)$ d) $R(O, -90^\circ)$

[B] Find in simplest form:

$$\frac{(-4)^4 \times (-4)^3 \times (4)^2}{(-4)^6 \times (-4)^5}$$

[3]

[A] Choose the correct answer:

(1) If $X = Y$, then $\left(\frac{3}{5}\right)^{X-Y} = \dots\dots\dots$

- a) $\frac{3}{5}$ b) $\frac{5}{3}$ c) Zero d) 1
-

(2) The image of the point $(-7, -2)$ with reflection in y-axis following by reflection in X-axis is point

- a) $(7, 2)$ b) $(-7, 2)$ c) $(7, -2)$ d) $(-2, 7)$
-

(3) A trapezium, its height is 3 cm, and middle base is 10 cm, then its area equals cm^2

- a) 37.5 b) 75 c) 15 d) 30
-

[B] Draw the line segment of length 7 cm and bisect it with compasses and ruler.

[4]

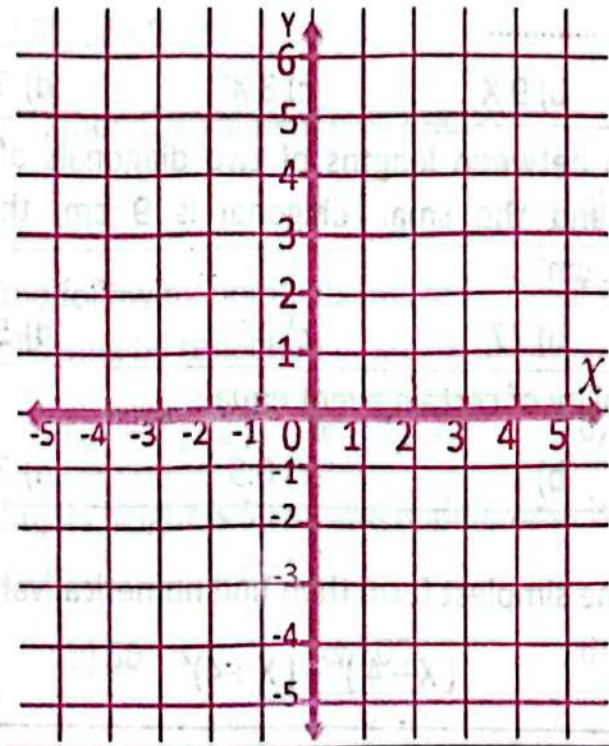
[A] Find the solution set of the following inequality in Z:

$$\frac{1}{2}(3X + 5) \leq 5$$

[B] On the coordinate plane draw the triangle ABC in which:

$$A(-3, -1), B(2, 0), C(1, 3)$$

Then find its image with translation $(-3, 1)$ following by translation $(-1, 2)$



[5]

[A] If the quotient of dividing $8X^3 - 20X^2 - 10 + 4X$ by $X^2 + 2$

[B] A bag contains 5 green balls, 6 blue balls, 4 black balls, if all balls are similar size, and a ball is drawing randomly; find the probability that of the drawn ball is:

- ① Black ② Green ③ Blue or green ④ Red

End of the questions

MODEL EXAM NO (10)**[1]****[A] Choose the correct answer:**

(1) $\sqrt{9x^2} = \dots\dots\dots$

- a) $3X$ b) $9X$ c) $3X^2$ d) $3|X|$

(2) If the ratio between lengths of two diagonals of a rhombus is $4 : 3$, and the small diagonal is 9 cm , then its area equals $\dots\dots\dots \text{cm}^2$

- a) 12 b) 27 c) 36 d) 54

(3) The probability of certain event equals $\dots\dots\dots$

- a) Zero b) 1 c) 0.5 d) 3

[B] Simplify to the simplest form then find numerical value at $X = -2$

$$(X - 4)^2 - (X + 4)^2$$

[2] [A] Choose the correct answer:

(1) The result of subtracting $(X + Y)^2$ from $(X - Y)^2$ equals $\dots\dots\dots$

- a) $2XY$ b) $-2XY$ c) $4XY$ d) $-4XY$

(2) The area of rectangle $X^2 + 6X + 8$ square units, and its length $X + 4$ length unit, then its width $\dots\dots\dots$ units

- a) X b) $X + 2$ c) $X - 2$ d) $X - 4$

(3) The rotation $R(O, 90^\circ)$ following with rotation $R(O, 90^\circ)$ is equivalent to rotation $\dots\dots\dots$

- a) $R(O, 180^\circ)$ b) $R(O, 270^\circ)$ c) $R(O, 90^\circ)$ d) $R(O, -270^\circ)$

[B] Find the result in scientific rotation:

$$(5.2 \times 10^8) + (6.3 \times 10^7)$$

[3].

[A] Choose the correct answer:

(1) If $5^{-3} \times a = 1$, then the value of $a = \dots\dots\dots$

- a) 5^2 b) 5^3 c) 5^0 d) 5^{-3}
-

(2) Which of the following points its image $(-7, -2)$ with reflection in y-axis following by reflection in X-axis

- a) $(7, 0)$ b) $(-7, -2)$ c) $(7, 2)$ d) $(-7, 2)$
-

(3) A trapezium, its height is 5 cm, and middle base is 10 cm, then its area equals cm^2

- a) 25 b) 50 c) 100 d) 125
-

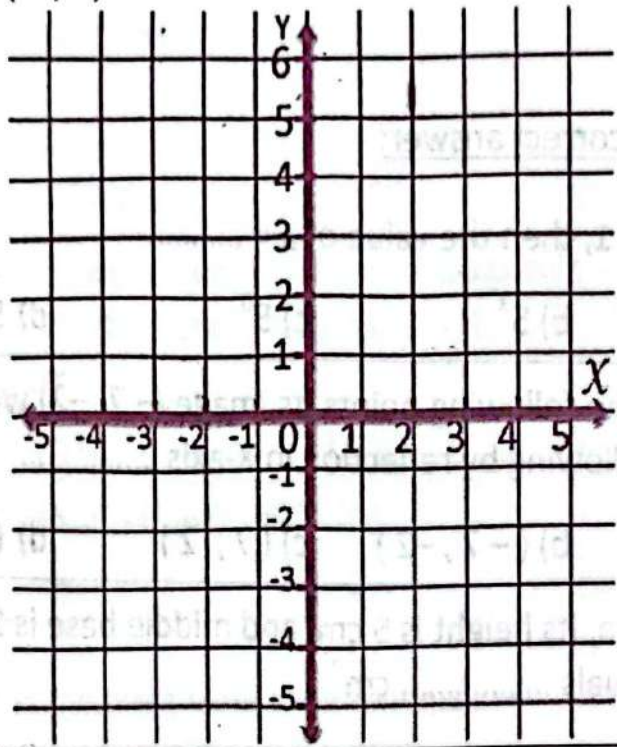
[B] Draw angle of measure 100° and bisect it with compasses and ruler.

[4]

[A] Find the solution set of the following inequality in Q:

$$2(3X - 1) \geq 4X - 3$$

- [B] On the coordinate plane draw the triangle rectangle ABCD in which: $A(-2, 2)$, $B(3, -2)$, $C(3, 1)$, $D(-2, 1)$
 Then find its image with translation $(-2, 3)$ following by translation $(2, 1)$



[5] [A] Find in the simplest form: $\frac{(-2)^7 \times 3^6}{(-2)^5 \times 3^4}$

- [B] From the following numbers $\{1, 2, 7\}$ form a number of two different digits. Write the sample space and find the probability of following events:

- ① The tens digit is even number
- ② Sum of two digits is 8
- ③ The ones digit equal the tens digit

End of the questions

MODEL EXAM NO (11)**[1]****[A] Choose the correct answer:**(1) Which of the following is additive inverse of $(-5)^2$?

- a)
- 5^{-2}
- b)
- -5^{-2}
- c)
- $(-5)^{-2}$
- d)
- $(-5)^2$

(2) The image of the point $(3, -4)$ with rotation $R(O, 90^\circ)$?

- a)
- $(4, -3)$
- b)
- $(4, 3)$
- c)
- $(3, 4)$
- d)
- $(-3, -4)$

(3) Which of the following equals $\sqrt{16x^2}$?

- a)
- $16x$
- b)
- $4x^2$
- c)
- $4x$
- d)
- $4|x|$

[B] Find the result in scientific notation:

$$(5 \times 10^4) \div (2.5 \times 10^{-3})$$

[2]**[A] Choose the correct answer:**(1) $\frac{a+b}{c} = \dots\dots\dots$

- a)
- $\frac{a}{c} + \frac{b}{c}$
- b)
- $\frac{a}{c} + b$
- c)
- $a + \frac{b}{c}$
- d)
- $\frac{a}{c} + \frac{b}{c}$

(2) In the experimental of throwing a regular die once, the probability of appearing an even number is

- a)
- $\frac{1}{4}$
- b)
- $\frac{1}{3}$
- c)
- $\frac{1}{2}$
- d)
- $\frac{1}{6}$

(3) If the side of square is 6 inch, then its area = inch square

- a) 36 b) 18 c) 24 d) 9

[B] Find in Z solution set of the inequality:

$$4X + 3 \geq 3X - 2$$

[3]

[A] Choose the correct answer:

(1) $(5X)(-2X^2) = \dots\dots\dots$

- a) $10X^3$ b) $3X^3$ c) $-10X^3$ d) $-10X^2$

(2) The image of the point $(1, 1)$ with translation 4 units to down following by translation 3 units to right is

- a) $(4, -3)$ b) $(4, 5)$ c) $(-2, -3)$ d) $(-4, -3)$

(3) Which of the following in scientific notation?

- a) 15×10^{-3} b) -3.4×10^8 c) $1.2 \times 10^{2.5}$ d) -0.1×10^{10}

[B] Which is greatest in area?

- Rhombus whose diagonals 10 cm, 8 cm
- Rectangle whose length 9 cm , width 5 cm.

[4]

[A] If the expression $(X^3 + 2X^2 + 3X + m)$ is divisible by $(X + 1)$. Find the value of m ?

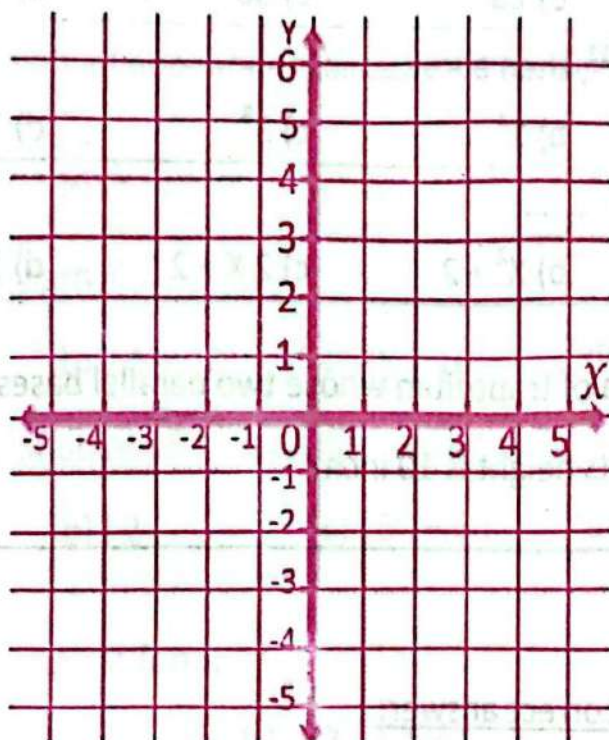
[B] Draw an angle of 130° then bisect it with ruler and compasses

[5]

[A] On the coordinate plane draw the triangle ABC in which:

$$A(-2, 2), B(1, 0), C(1, 2)$$

Then find its image with reflection in X-axis following by reflection in Y-axis?



[B] A card is drawn randomly from eight cards numbered from 4 to 13, find the probability that the drawn card has:

① An odd number.

② An even number > 9

End of the questions

MODEL EXAM NO (12)**[1]****[A] Choose the correct answer:**

(1) The area of rhombus whose diagonals 7 cm, 8 cm is Cm^2

- a) 14 b) 28 c) 30 d) 56

(2) If $3^4 \times a = 3^{12}$, then $a = \dots\dots\dots$

- a) 1^8 b) 1^3 c) 3^8 d) 3^3

(3) $X(X+2) = \dots\dots\dots$

- a) $2X + X^3$ b) $X^2 + 2$ c) $2X + 2$ d) $X^2 + 2X$

[B] Find the area of trapezium whose two parallel bases are 7 inch, 9 inch, and its height is 10 inch?

[2]**[A] Choose the correct answer:**

(1) The image of the point with reflection in X is (3, 0)

- a) (0, 3) b) (3, 0) c) (-3, 0) d) (0, -3)

(2) $\sqrt[3]{(-8)^2} = \dots\dots\dots$

- a) -4 b) -2 c) 2 d) 4

(3) $\div (-4ab) = 3ab$

- a) -12 b) $-12a^2b^2$ c) -ab d) $-\frac{4}{3}$

- [B] A bag contains 40 balls area similar in size, if the probability of drawn a red ball is $\frac{3}{5}$, find the number of red balls in the bag.
-

[3]

[A] Choose the correct answer:

- (1) The probability of appearing a head when tossing a coin once is

a) 1 b) $\frac{1}{2}$ c) $\frac{1}{4}$ d) Zero

- (2) Quarter milliard =

a) 25×10^8 b) 2.5×10^8 c) 25×10^9 d) 2.5×10^9

- (3) The image of point (5 , - 3) with translation 3 unit to left is

a) (5 , 0) b) (2 , - 3) c) (5 , - 6) d) (8 , - 3)

[B] Find in the simplest form:

$$(X + 1)^2 - X(X + 2)$$

[4]

[A] Draw line segment AB which its length 7 cm and bisect it at point C with ruler and compasses

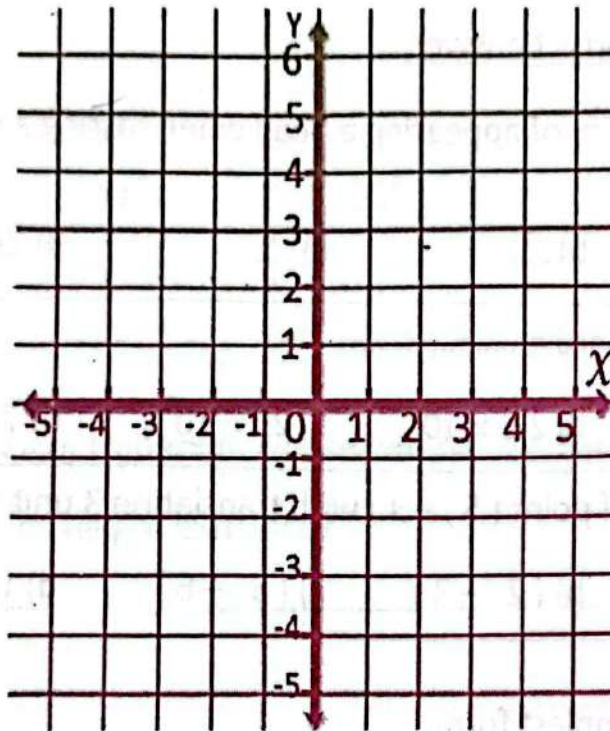
- [B] A Cuboid its volume $12 X^2 Y + 20 X Y^2$ cubic units, and its base area is $4 XY$ square units, find its height in term of X , Y.
-

[5]

[A] On the coordinate plane draw the triangle rectangle ABCD in

which: $A(1, 1)$, $B(3, 1)$, $C(3, 4)$, $D(1, 4)$

Then find its image with rotation $R(O, -90^\circ)$.



[B] Find in \mathbb{Z} the solution set of the equation:

$$2x^2 + 1 = 33$$



End of the questions

حمل الآن

مجانا وحصريا

امتحانات رقم (6)

الترم الثاني



Q1: CHOOSE THE CORRECT ANSWER

- 1 The image of the point $(3, -1)$ by $R(O, -180^\circ)$ is
 (a) $(-3, -1)$ (b) $(3, -1)$ (c) $(-3, 1)$ (d) $(3, 1)$
- 2 If the area of rectangle is $24x^3$ and its width is $4x$ then its length is
 (a) $6x$ (b) $8x^2$ (c) $6x^2$ (d) $96x^4$
- 3 What is the translation that makes point $A'(-2, 1)$ the image of $A(4, -5)$?
 (a) $(-6, 6)$ (b) $(-6, -6)$ (c) $(2, -4)$ (d) $(6, -6)$
- 4 $\sqrt{25 + 144} = 5 + \dots\dots\dots$
 (a) 12 (b) 13 (c) 8 (d) 6
- 5 If $x < 0 < y$, $|x| > y$, Then $x + y$ zero
 (a) $>$ (b) $<$ (c) $=$ (d) \geq
- 6 If $(x - 3)$ is one factor of $(x^2 + 4x - 21)$, then the other factor is
 (a) $x + 7$ (b) $x - 5$ (c) $x + 5$ (d) $x + 3$
- 7 A square whose diagonal length is 12 cm, its area = cm^2 .
 (a) 72 (b) 48 (c) 144 (d) 24
- 8 What is the event of drawing a perfect cube number from a set of 25 cards numbered 1 to 25?
 (a) $\{1, 8, 27\}$ (b) $\{1, 8\}$ (c) $\{1, 8, 27, 64\}$ (d) $\{1, 8, 64\}$
- 9 $0.0000073 = 7.3 \times \dots\dots\dots$
 (a) 10^{-6} (b) 10^{-5}
 (c) 10^5 (d) 10^6

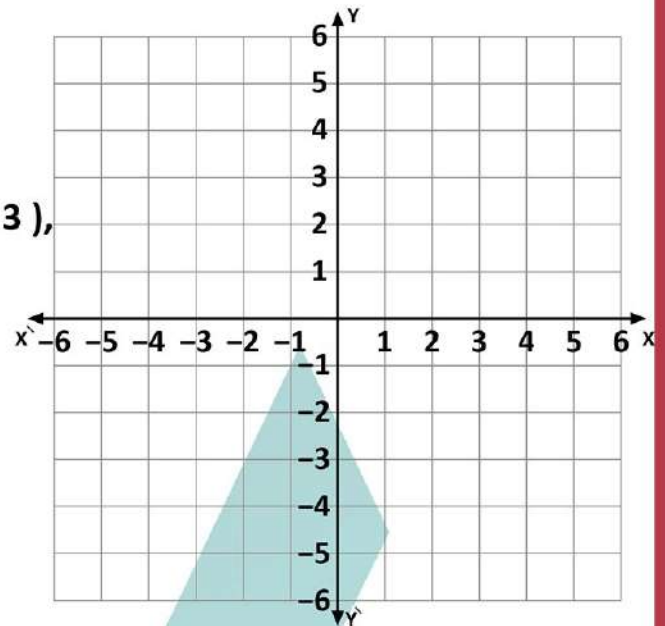


Q2: ANSWER THE FOLLOWING

- 1** Draw triangle D E F with vertices D (2 , 3),
 E (5 , 3), and F (5 , 5).

Then find its image under the
 rotation 180° about the origin

.....



- 2** A card was drawn randomly from a set of identical cards numbered from 0
 to 10. Find the probability that the drawn card carries:

- a** A number that is a multiple of 5.
b A number greater than 7

- 3** Find the S.S of $3 (x + 2) \geq 2 (x + 1)$, If the substitution set is N

.....

- 4** If $(2x + 1)$ is a factor of the expression $(2x^2 - 7x - 4)$, then find the other
 factor ?

.....

- 5** A trapezium with an area of 150 square meters has bases measuring 10
 meters and 20 meters. Calculate its height

.....

- 6** Calculate the value of the following in scientific notation:
 $(5.4 \times 10^4) + (3.7 \times 10^5)$

.....

- 7** Find in the simplest form: $(a + b)^2 - (a + b) (a - b)$

.....



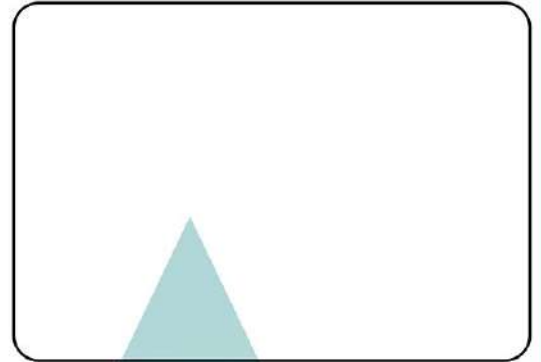
Q1: CHOOSE THE CORRECT ANSWER

- 1 What is the value of m that's make $x^2 + 5x - m$ divisible by $x - 2$?
 (a) 12 (b) 16 (c) 14 (d) 15
- 2 Half of $4^{20} = \dots\dots\dots$
 (a) 4^{10} (b) 2^{39} (c) 2^{20} (d) 4^{19}
- 3 The image of the point $\dots\dots\dots$ by $R(O, -90^\circ)$ followed by $R(O, 90^\circ)$ is $(4, 7)$.
 (a) $(-4, -7)$ (b) $(7, 4)$ (c) $(-7, -4)$ (d) $(4, 7)$
- 4 If the volume of a cube is 64 cm^3 : then its edge length is $\dots\dots\dots$ cm.
 (a) 4 (b) 8 (c) 16 (d) 64
- 5 The probability of an event that is impossible is $\dots\dots\dots$.
 (a) 0 (b) 1 (c) $\frac{1}{2}$ (d) $\frac{1}{3}$
- 6 Which of the following is the greatest?
 (a) 6.3×10^5 (b) 9.8×10^4 (c) 5.2×10^5 (d) 7.3×10^4
- 7 The area of the square whose diagonal length is 6 cm. equals $\dots\dots\dots$ cm^2 .
 (a) 12 (b) 18 (c) 24 (d) 36
- 8 The image of the point $(0, 8)$ by the translation $(3, -5)$ followed by reflection in the X-axis is $\dots\dots\dots$.
 (a) $(-3, -3)$ (b) $(-3, 3)$ (c) $(3, -3)$ (d) $(3, 3)$
- 9 $\sqrt[3]{-64} + \sqrt{16} = \dots\dots\dots$
 (a) zero (b) -8
 (c) 8 (d) ± 8



Q2: ANSWER THE FOLLOWING

- 1** Draw triangle XYZ where:
 $XY = 5 \text{ cm}$, $YZ = 8 \text{ cm}$,
 $XZ = 7 \text{ cm}$, Determine its type according
to the measures of its angles.



- 2** A trapezium has an area of 315 square centimeters, a height of 15 cm, and the ratio between the lengths of its bases is 3 : 4
What is the length of each base?

.....

- 3** $(x + 7)(x - 7) = x^2 + \dots\dots\dots$

- 4** Find the value of b that makes the expression $(4x^2 + 11x + b)$
divisible by $(4x - 1)$

.....

- 5** Simplify: $\frac{x^3 \times x^{-2}}{x^{-5} \times x}$, Then find the numerical value of the result when: $x = -2$

.....

- 6** If a and b are the two square roots of c where $c \neq 0$, complete the following :

a $a + b = \dots\dots\dots$

b $\frac{a}{b} = \dots\dots\dots$

- 7** A bag contains 30 balls: 8 black, 12 white, and 10 red. If a ball is drawn at random, find the probability that the ball:

a is white.

b is not white.

c is either red or white



FOLLOW US

Q1: CHOOSE THE CORRECT ANSWER

- 1 $(x^3 + x^2) \div x^2 = \dots\dots\dots$
 - a 0
 - b x
 - c $x + 1$
 - d $2x + 1$
- 2 The solution set of the inequality: $-4x > 3$ in Z^+ is $\dots\dots\dots$
 - a $\{0, -1, -2, \dots\}$
 - b $\{0, 1, 2, 3, 4, \dots\}$
 - c $\{0\}$
 - d \emptyset
- 3 If $0.00043 = 4.3 \times 10^n$, Then $n = \dots\dots\dots$
 - a -5
 - b -4
 - c 4
 - d 5
- 4 The identity rotation is a rotation with an angle of measure $\dots\dots\dots$
 - a 90°
 - b 180°
 - c 270°
 - d 360°
- 5 The perimeter of the rectangle whose dimensions are $8x$, $5x$ is $\dots\dots\dots$
 - a $40x^2$
 - b $13x$
 - c $40x$
 - d $26x$
- 6 If the image of the point $(k - 4, 7)$ by reflection in y-axis is itself, then $k = \dots\dots\dots$
 - a 7
 - b 11
 - c 3
 - d 4
- 7 The probability of a certain event is $\dots\dots\dots$
 - a 0
 - b 1
 - c $\frac{1}{2}$
 - d $\frac{1}{3}$
- 8 If $x^2 = 16$, $y^2 = 9$ and $xy = 12$, then $(x - y)^2 = \dots\dots\dots$
 - a 49
 - b 165
 - c -1
 - d 1
- 9 Drawing a card from a set of identical numbered cards where all cards have the same number without knowing the numbers written on the cards is $\dots\dots\dots$
 - a A random experiment
 - b An impossible event
 - c Not a random experiment
 - d A certain event



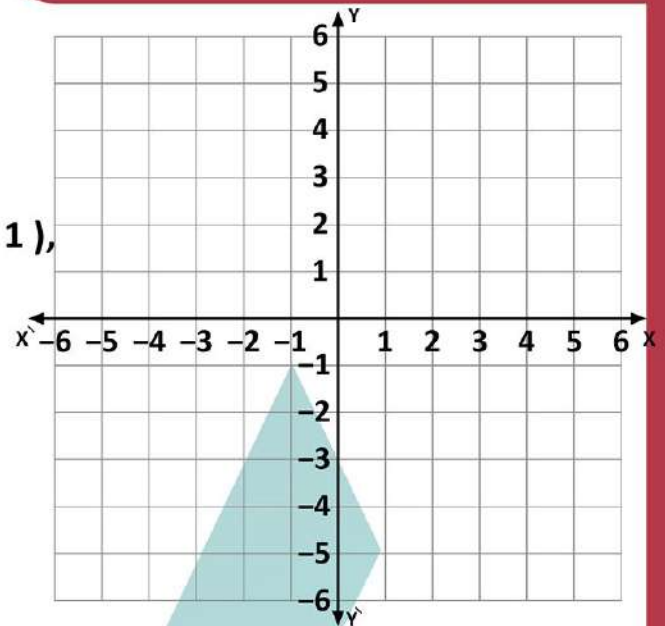
FOLLOW US

Q2: ANSWER THE FOLLOWING

- 1** Draw the rhombus A B C D where A (1 , 1),
B (3 , 1), C (4 , 3), and D (2 , 3).

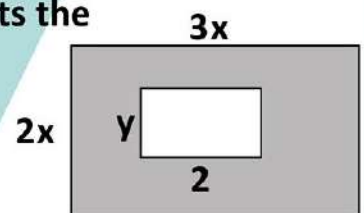
Then draw its image by the translation
(- 2 , 1) followed by translation (1 , - 3)

.....
.....
.....



- 2** Find in the simplest form the expression which represents the
shaded part of the opposite figure:

.....
.....



- 3** If the probability of occurrence of an event equals the probability of not its' occurrence, then the probability of this event =

- 4** Find the S.S of $4 (x + 3) > 7x - 9$ If the substitution set is Q

- 5** Put in the scientific notation : 0.000014×10^2

.....

- 6** A player attempted to the goal 50 shoots, he scored 35 of them,
find the experimental probability of:

- ☒ a) scoring the goal (G)
☐ b) not scoring the goal (F)

- 7** A rectangle with area is $(6x^3 + 7x^2 - 18x + 5) \text{ cm}^2$, and
length $(3x^2 - 4x + 1) \text{ cm}$ Then find its width.

.....
.....



Q1: CHOOSE THE CORRECT ANSWER

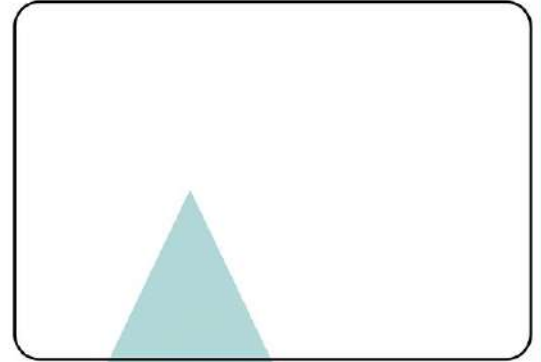
- 1 The area of a rhombus is 90 cm^2 , and one diagonal is 9 cm.
What is the other diagonal?
 (a) 10 cm (b) 15 cm (c) 18 cm (d) 20 cm
- 2 $\sqrt[3]{(-8)^2} = \dots\dots\dots$
 (a) -4 (b) -2 (c) 2 (d) 4
- 3 $k(3m + 2) = 36 \text{ m}^2 + 24 \text{ m}$, then $k = \dots\dots\dots$
 (a) 12 m (b) 12 (c) 18 m (d) 6 m
- 4 If $0.0000503 = m \times 10^{-5}$, Then $m = \dots\dots\dots$
 (a) 503 (b) 5.03 (c) 50.3 (d) 0.503
- 5 The image of the point $(4, -3)$ by translation 3 units to the left is
 (a) $(7, -3)$ (b) $(1, -3)$ (c) $(4, -6)$ (d) $(4, 0)$
- 6 If $\frac{a}{7} > \frac{b}{9}$, then $9a \dots\dots\dots 7b$
 (a) $>$ (b) $<$ (c) $=$ (d) \leq
- 7 Which of the following could be a probability of an event?
 (a) -0.5 (b) 49% (c) $\frac{3}{2}$ (d) $1\frac{1}{3}$
- 8 What is the image of the point $(-3, 5)$ by reflection in the x-axis followed by reflection in the y-axis again?
 (a) $(3, -5)$ (b) $(-3, -5)$ (c) $(-3, 5)$ (d) $(3, 5)$
- 9 The volume of a cuboid whose dimensions are $5x \text{ cm}$, $2x \text{ cm}$, and $2x \text{ cm}$, is cm^3 .
 (a) $9x$ (b) $20x^2$
 (c) $9x^3$ (d) $20x^3$



FOLLOW US

Q2: ANSWER THE FOLLOWING

- 1** Draw $\angle ABC$ of measure 120° , then bisect it using a ruler and compass by the bisector BD showing the steps of the solution.
 Verify by using a protractor that
 $m(\angle ABD) = m(\angle CBD)$



- 2** Determine the height of a trapezium with an area of 200 square meters and bases measuring 15 meters and 25 meters.

.....

- 3** Find the solution set of the following inequality in Z: $x - 3(x - 5) \geq x + 7$

.....

- 4** The sum of probabilities of all possible outcomes of any random experiment =

- 5** Find the S.S of the following in Q:

a $(x - 1)^3 = 216$

b $3x^2 + 75 = 0$

.....

.....

- 6** A class has 15 student, 4 of them with black hair, 5 with brown hair, and 6 with yellow hair, if a student is chosen at random, find the probability that the student is:

a his hair is black.

b his hair is not yellow.

- 7** Find the quotient of: $(9x^4 + 6x^3 + 12x^2)$ by $3x$

.....



Q1: CHOOSE THE CORRECT ANSWER

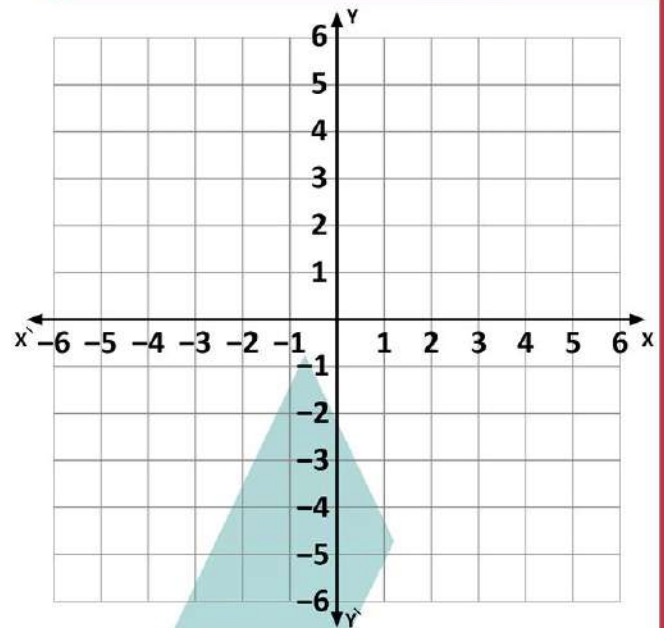
- 1 If $x^2 = 10$, $y^2 = 7$, then $(x + y)(x - y) = \dots\dots\dots$
- (a) 70 (b) 17 (c) 3 (d) -3
- 2 The image of the point $(-1, -4)$ by reflection in the $\dots\dots\dots$ is $(1, -4)$
- (a) x-axis (b) y-axis (c) origin point (d) otherwise
- 3 If $0.000809 = m \times 10^{-4}$, Then $m = \dots\dots\dots$
- (a) 809 (b) 8.09 (c) 80.9 (d) 0.809
- 4 $(2x)^4 = \dots\dots\dots$
- (a) $2x^4$ (b) $16x$ (c) $16x^4$ (d) $16x^2$
- 5 The multiplicative inverse of the number $(-1)^{45}$ is $\dots\dots\dots$
- (a) $(-1)^{43}$ (b) $(-1)^{44}$ (c) $(1)^{43}$ (d) $(1)^{44}$
- 6 The coefficient of xy in $(2x + 3y)^2$ is $\dots\dots\dots$
- (a) 1 (b) 5 (c) 6 (d) 12
- 7 A square has a diagonal of 16 cm. What is the area of the square?
- (a) 128 cm^2 (b) 100 cm^2 (c) 144 cm^2 (d) 256 cm^2
- 8 The inequality which represent the maximum speed of a car is 80 km/hr is $\dots\dots\dots$
- (a) $x > 80$ (b) $x < 80$ (c) $x \geq 80$ (d) $x \leq 80$
- 9 What is the event of getting the same outcome on both tosses when tossing a fair coin twice?
- (a) {HH, HT} (b) {HH, TT}
(c) {HT, TH} (d) {HT, TT}



FOLLOW US

Q2: ANSWER THE FOLLOWING

- 1** Draw triangle A B C on a grid where A (1 , 2), B (1 , - 1), and C (5 , 2). Then draw its image under the rotation R (O , - 90°).



- 2** Find $\frac{36x^4y - 15xy^2}{18xy}$ in the simplest form

- 3** A fair coin is tossed 100 times, and the head appeared 41 times, Find the experimental probability of appearing:

- ☐ a The head (H)
☐ b The tail (T)

- 4** Simplify the following to the simplest form: $\left(\frac{-1}{2}\right)^2 \times \sqrt{\frac{81}{25}} \times \frac{4}{3}$

- 5** Calculate the value of the following in the scientific notation:
 $(3.6 \times 10^8) \times (1.8 \times 10^3)$

- 6** A trapezium with a middle base of 19 cm and a height of 5 cm. What is its area?

- 7** In the experiment of A fair coin is tossed 50 times, and the head appeared 32 times, then the experimental probability of appearing of tail



FOLLOW US

Q1: CHOOSE THE CORRECT ANSWER

- 1 If $(6x^2y^3 + kxy) \div 6x = xy^3 - 12y$ where $(x \neq 0)$, then $|k| = \dots\dots\dots$
 - a -72
 - b -2
 - c 2
 - d 72
- 2 If $(x - y)(2x + y) = 2x^2 + kxy - y^2$, then $k = \dots\dots\dots$
 - a 3
 - b 4
 - c -1
 - d 1
- 3 $\frac{3^x}{3^{-y}} = \dots\dots\dots$
 - a $-\frac{x}{y}$
 - b $3^{x \div y}$
 - c 3^{x+y}
 - d 3^{x-y}
- 4 In a single roll of a fair die, the probability of getting an even number is $\dots\dots\dots$
 - a $\frac{1}{6}$
 - b $\frac{1}{4}$
 - c $\frac{1}{2}$
 - d $\frac{1}{3}$
- 5 The scientific notation of the number 750×10^{-6} is $\dots\dots\dots$
 - a 7.5×10^{-8}
 - b 7.5×10^{-7}
 - c 7.5×10^{-4}
 - d 7.5×10^4
- 6 What is the image of the point $(2, -3)$ after reflection in the x-axis followed by reflection in the y-axis?
 - a $(2, 3)$
 - b $(-2, -3)$
 - c $(-2, 3)$
 - d $(2, -3)$
- 7 If $-x > 4$, then $\dots\dots\dots$
 - a $x > 4$
 - b $x < 4$
 - c $x < -4$
 - d $x > -4$
- 8 What is the image of the point $(-3, 0)$ under rotation $R(O, 90)$ followed by rotation $R(O, -90)$?
 - a $(3, 0)$
 - b $(0, 3)$
 - c $(0, -3)$
 - d $(-3, 0)$
- 9 Which of the following rotations makes $A'(x, -y)$ is the image of $A(-x, y)$?
 - a $R(O, 90^\circ)$
 - b $R(O, -90^\circ)$
 - c $R(O, 360^\circ)$
 - d $R(O, 180^\circ)$



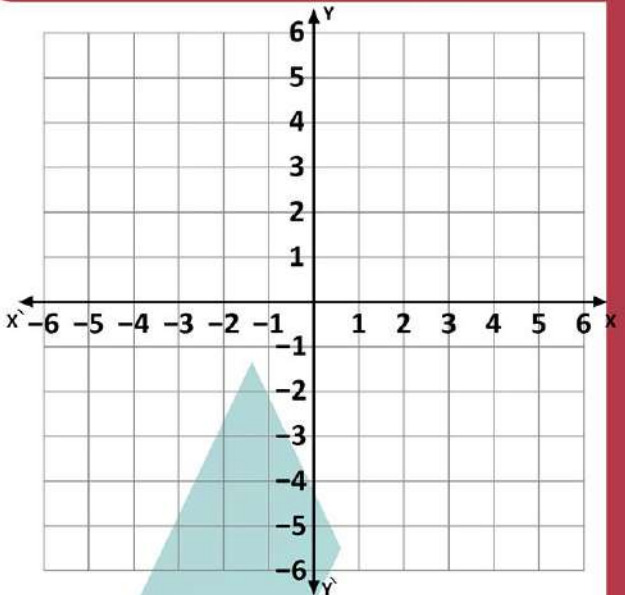
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Q2: ANSWER THE FOLLOWING

- 1** Draw the triangle A B C where A (2 , - 2), B (6 , - 2), and C (4 , 2).

Then find its image under the rotation 90° anti-clockwise about the origin.

.....
.....
.....



- 2** A square whose area is 0.81 cm^2 , Find its perimeter.

.....

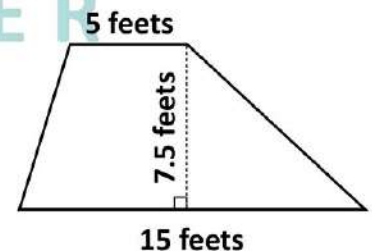
- 3** Simplify to the simplest form the expression: $2x(2x + 1) + 3x(x + 2)$, then find the numerical value of the expression when $x = -1$

.....

- 4** A class has 40 student, a student has been chosen randomly, if the probability that the student not wearing a medical glasses is $\frac{5}{8}$, then the number of students who wearing a medical glasses = Students.

- 5** Find the area of the trapezium:

.....
.....



- 6** Find the solution set of the following inequality in Z: $x - 3(x - 5) \geq x + 7$

.....
.....

- 7** Find the quotient of : $x^3 - 64$ by $x - 4$

.....
.....



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Q1: CHOOSE THE CORRECT ANSWER

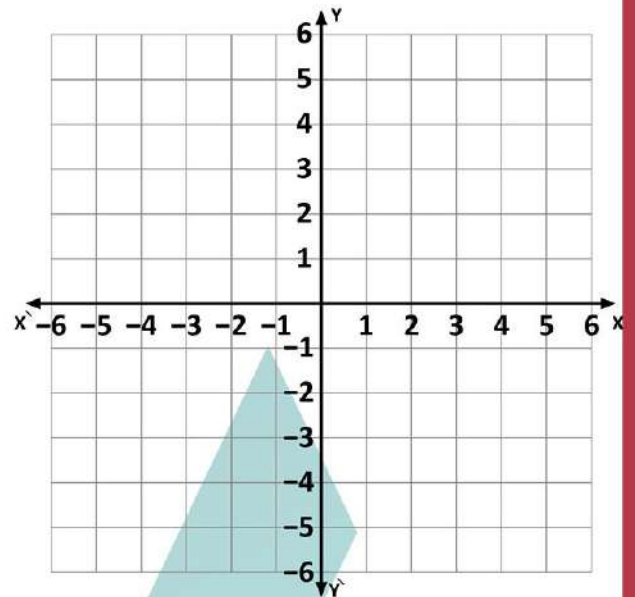
- 1 The triangle whose base length is 12 cm. and its area is 48 cm^2 , then the corresponding height is cm
 (a) 3 (b) 4 (c) 6 (d) 8
- 2 The total probability of all possible outcomes of a random experiment is
 (a) 0 (b) 1 (c) $\frac{1}{2}$ (d) $\frac{2}{3}$
- 3 The S.S of the equation: $x^2 + 9 = 0$ in Q is
 (a) $\{-9\}$ (b) $\{-3, 3\}$ (c) $\{-3\}$ (d) \emptyset
- 4 $\div 5m = 25 \text{ m}^2n$
 (a) 125 m^2n (b) 125 m^3n (c) m^3n (d) 25 m^3n
- 5 The quotient of $x^2 + 3x - 40$ by $x + 8$ equals
 (a) $x + 13$ (b) $x + 5$ (c) $x - 5$ (d) $x - 13$
- 6 If $x - y = 4$ and $x + y = 10$, then $x(x - y) + y(x - y) =$
 (a) 4 (b) 6 (c) 14 (d) 40
- 7 If $y^{22} + y^{23} = 0$, then $y =$
 (a) -1 (b) 1 (c) 2 (d) -2
- 8 Which of the following is the smallest ?
 (a) 314×10^3 (b) 3.14×10^4 (c) 31.4×10^5 (d) 0.314×10^6
- 9 The image of the point $(0, -4)$ by reflection in the is itself
 (a) x-axis (b) y-axis
 (c) origin point (d) otherwise



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Q2: ANSWER THE FOLLOWING

- 1** Reflect ΔBCD with vertices $B(2, -1)$, $C(4, -3)$, and $D(3, -5)$ over the x -axis. Draw the reflected triangle.



- 2** Reduce: $(x - 3)^2 - (x - 3)(x + 3)$

- 3** $28a^4b^2 \div \dots = 2a^3b^2$

- 4** Find the length of the diagonal of a square whose area is equal to the area of a rhombus with diagonal lengths of 4 meters and 25 meters.

- 5** Find the area of the opposite rectangle in terms of x , Calculate the numerical value of the area when $x = 2$ cm

$5x$



$$x^2 + 3x + 4$$

- 6** Find the solution set of : $3(7x - 1) \leq 20x - 1$ in Z .

- 7** In the experiment of forming a two-digit number of different digits from the set of digits $\{1, 3, 4\}$, if one of these numbers is chosen at random, find the probability that number is:

- ☐ a) divisible by 3.
- ☐ b) its Ones digit = its Tens digit.



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Q1: CHOOSE THE CORRECT ANSWER

- 1 The height of a trapezium is 6 cm. If the area is 90 cm^2 , and one base is 10 cm, then the second base equals
 - a 15 cm
 - b 20 cm
 - c 10 cm
 - d 12 cm
- 2 $\frac{a+b}{c} = \dots\dots\dots$.
 - a $\frac{a+b}{c}$
 - b $\frac{a}{b+c}$
 - c $\frac{a}{c} + \frac{b}{c}$
 - d $\frac{ab}{c}$
- 3 $(-\frac{3}{5})^{-3} = \dots\dots\dots$
 - a $-\frac{27}{125}$
 - b $-\frac{125}{27}$
 - c $\frac{27}{125}$
 - d $\frac{125}{27}$
- 4 If $(x-y)(2x+y) = 2x^2 + kxy - y^2$, then $k = \dots\dots\dots$.
 - a 3
 - b 4
 - c -1
 - d 1
- 5 The image of the point $(-1, 5)$ after a 90° clockwise rotation is?
 - a $(5, 1)$
 - b $(-5, 1)$
 - c $(1, -5)$
 - d $(-1, 5)$
- 6 3 belongs to the solution set of the inequality: , where $x \in \mathbb{Z}$
 - a $x > 3$
 - b $-x < -3$
 - c $x < 3$
 - d $-x \geq -3$
- 7 The square whose area is 10 cm^2 , its side length is cm
 - a 100
 - b $\sqrt{10}$
 - c 10
 - d $\sqrt{100}$
- 8 If the volume of a cuboid is $(x^2 + 14x + 49) \text{ cm}^3$, and its base area is $(x+7) \text{ cm}$, then the height = cm.
 - a $x+6$
 - b $x+5$
 - c $x+7$
 - d $x+9$
- 9 The image of the point by translation $(2, 0)$ followed by translation $(0, 2)$ is $(4, 7)$.
 - a $(6, 9)$
 - b $(2, 7)$
 - c $(4, 5)$
 - d $(2, 5)$



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Q2: ANSWER THE FOLLOWING

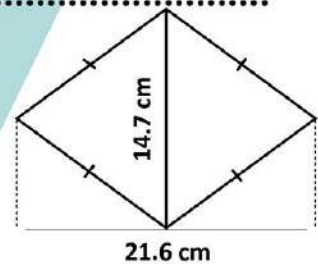
- 1** Draw a line segment AB of length 5 cm, and bisect it using a ruler and compass. Verify by measuring that the bisection is accurate.

- 2** Simplify: $(x - 3)(x + 4) + 9$, then find numerical value of the result when $x = 5$

.....

- 3** Find the area of the opposite figure:

.....



- 4** Divide $(-3x^2 + x^3 - x + 6)$ by $(x - 2)$, then find the numerical value of the quotient when $x = 2$

.....

- 5** If $0 \leq P(A) \leq \dots\dots\dots$ where A is an event

- 6** Find the following in scientific notation:

$$(3.2 \times 10^3) + (2.5 \times 10^4)$$

.....

- 7** A card was drawn randomly from a set of identical cards numbered from 8 to 17. Find the probability that the drawn card carries:

- ☐ a) A number greater than 12
☐ b) A perfect square



Q1: CHOOSE THE CORRECT ANSWER

- 1 If $\frac{x}{-3} < 2$, then x - 6
 (a) $>$ (b) $<$ (c) $=$ (d) \geq
- 2 If $(4x - 5)^2 = ax^2 + bx + c$, what is the value of a ?
 (a) 20 (b) -20 (c) 16 (d) -10
- 3 If $3y$ is the side length of a square, then its area equals
 (a) $12y$ (b) $9y$ (c) $9y^2$ (d) $81y^2$
- 4 The number which is in scientific notation from the following is
 (a) 11×10^8 (b) 9.7×10^{-5} (c) 10.2×10^{-2} (d) 0.87×10^8
- 5 Which of the following points is the same point by reflection in the x-axis?
 (a) $(-3, 0)$ (b) $(0, -3)$ (c) $(1, -3)$ (d) $(-3, 1)$
- 6 $(\frac{a}{b})^5 \times \frac{b^5}{a^5} = \dots\dots\dots$ (where $a \neq \text{zero}$, $b \neq \text{zero}$)
 (a) $(\frac{a}{b})^{10}$ (b) $\frac{a}{b}$ (c) ab (d) $(xy)^{\text{zero}}$
- 7 A square has a side length of S and an Area A ,
 What is the area of square whose diagonal is $2S$?
 (a) A (b) $2A$ (c) $4A$ (d) A^2
- 8 If a fair coin is flipped three times in a row, the probability of getting heads all three times is
 (a) $\frac{1}{6}$ (b) $\frac{1}{4}$ (c) $\frac{1}{2}$ (d) $\frac{1}{8}$
- 9 If the quotient of $(x^2 - 2x - 35)$ divided by $(x + 5)$ is $(x + b)$,
 what is the value of b ?
 (a) -7 (b) 5
 (c) -5 (d) 7



Q2: ANSWER THE FOLLOWING

- 1 Draw equilateral triangle ABC in which its side length is 5 cm.
Then verify its type according to its angles.

.....

- 2 If $3^x = 7$, Find the value of 3^{x+1}

.....

- 3 A rhombus has diagonal of lengths $(3x + 6)$ meters, and $(x + 1)$ meters.
Find its area in terms of x , and then find the numerical value of the area when $x = 1$

.....

.....

- 4 If $(x - 4)$ is a factor of the expression $(x^2 - 5x + 4)$. Find the other factor

.....

- 5 Find the S.S for each of the following in Z:

a $2(x + 5) - 7 > 9$

a $2x^2 + 1 = 33$

.....

- 6 Write in scientific notation : 0.0030305×10^{10}

.....

- 7 A box contains 7 red balls, 8 green balls and 5 yellow balls. One ball is drawn randomly. Find the probability of getting :

a A green ball.

b A ball not yellow.

c A red ball.

d A blue ball.



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Q1: CHOOSE THE CORRECT ANSWER

- 1 The image of the point $(2, -3)$ by rotation about the origin with an angle of measure 180° is
 - a $(-2, -3)$
 - b $(3, 2)$
 - c $(-2, 3)$
 - d $(2, 3)$
- 2 $\div (-2x^2y) = 12xy^2$
 - a $6xy$
 - b $-6xy$
 - c $24x^3y^3$
 - d $-24x^3y^3$
- 3 The area of a square whose side length is $\sqrt{3}$ cm is cm^2
 - a $4x\sqrt{3}$
 - b 9
 - c 3
 - d 6
- 4 If the area of a trapezium is 120 cm^2 , and its bases are 20 cm and 10 cm, Then the height = cm
 - a 4
 - b 6
 - c 8
 - d 10
- 5 If $(x+5)(x-5) = x^2 + b$, then $b = \dots\dots\dots$
 - a 25
 - b -25
 - c 10
 - d -10
- 6 If $x > 7$, then $-x \dots\dots\dots$
 - a > -7
 - b ≥ -7
 - c < -7
 - d ≤ -7
- 7 In the experiment of tossing a fair coin twice, how many elements are in the sample space?
 - a 2
 - b 4
 - c 8
 - d 16
- 8 A rectangle whose length is $3x^2$ cm, and its width is $5x$ cm, then its area is cm^2 .
 - a $15x$
 - b $15x^2$
 - c $8x^3$
 - d $15x^3$
- 9 $6y(3y^2 - 4y + 2) = \dots\dots\dots$
 - a $18y^3 + 24y^3 + 12y$
 - b $18y^3 - 4y + 2$
 - c $18y^2 - 24y + 2$
 - d $18y^3 - 24y^2 + 12y$

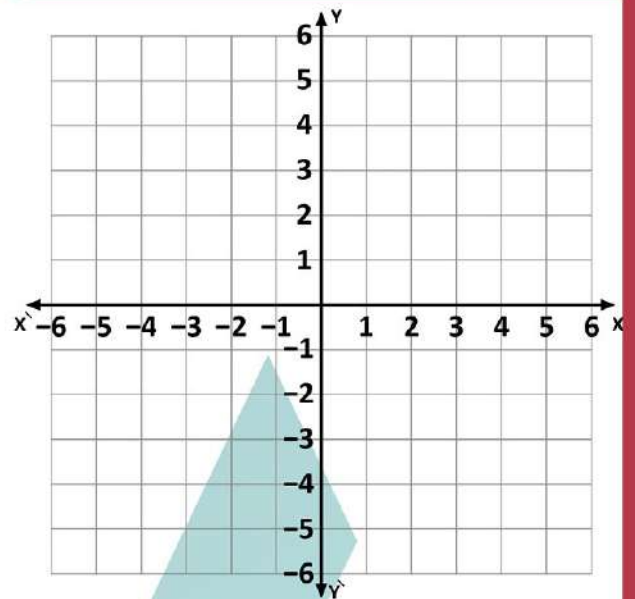


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Q2: ANSWER THE FOLLOWING

- 1** Draw triangle ABC, A (2 , - 1), B (4 , 2), and C (3 , 5). Then draw the image of triangle ABC under rotation R (O , 90°) followed by rotation R (O , 180°).

.....



- 2** Simplify the following to the simplest form: $1 \frac{1}{3} \times \sqrt{\frac{81}{16}} \times \left(\frac{1}{2}\right)^0$

.....

- 3** Divide ($x^2 + 20x + 75$) by ($x + 5$), then find the numerical value of the quotient when $x = 3$

.....

- 4** A trapezium has an area of 175 square meters, and the lengths of its two parallel bases are 14 meters and 21 meters. Find its height.

.....

- 5** Find the expansion of: $(2x + 4)^2$

.....

- 6** Write in the scientific notation: $(2.4 \times 10^5) - (4.2 \times 10^4)$

.....

- 7** A card was drawn randomly from a set of identical cards numbered from 0 to 10. Find the probability that the drawn card carries:

- a** A number that is a multiple of 5.
b A number greater than 7



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Q1: CHOOSE THE CORRECT ANSWER

- 1 The image of the point $(3, -1)$ by $R(0, -180^\circ)$ is
 (a) $(-3, -1)$ (b) $(3, -1)$ (c) $(-3, 1)$ (d) $(3, 1)$
- 2 If the area of rectangle is $24x^3$ and its width is $4x$ then its length is
 (a) $6x$ (b) $8x^2$ (c) $6x^2$ (d) $96x^4$
- 3 What is the translation that makes point $A'(-2, 1)$ the image of $A(4, -5)$?
 (a) $(-6, 6)$ (b) $(-6, -6)$ (c) $(2, -4)$ (d) $(6, -6)$
- 4 $\sqrt{25 + 144} = 5 + \dots$
 (a) 12 (b) 13 (c) 8 (d) 6
- 5 If $x < 0 < y$, $|x| > y$, Then $x + y$ zero
 (a) $>$ (b) $<$ (c) $=$ (d) \geq
- 6 If $(x - 3)$ is one factor of $(x^2 + 4x - 21)$, then the other factor is
 (a) $x + 7$ (b) $x - 5$ (c) $x + 5$ (d) $x + 3$
- 7 A square whose diagonal length is 12 cm, its area = cm^2 .
 (a) 72 (b) 48 (c) 144 (d) 24
- 8 What is the event of drawing a perfect cube number from a set of 25 cards numbered 1 to 25?
 (a) $\{1, 8, 27\}$ (b) $\{1, 8\}$ (c) $\{1, 8, 27, 64\}$ (d) $\{1, 8, 64\}$
- 9 $0.0000073 = 7.3 \times \dots$
 (a) 10^{-6} (b) 10^{-5} (c) 10^5 (d) 10^6



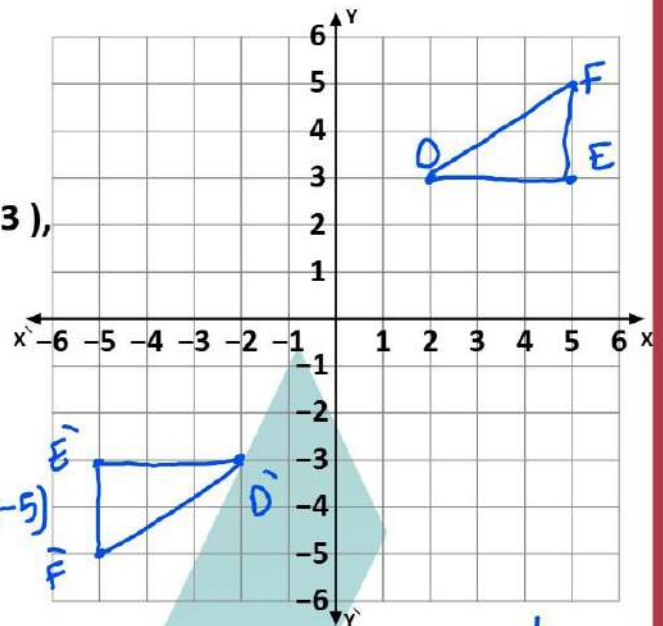
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Q2: ANSWER THE FOLLOWING

- 1 Draw triangle D E F with vertices D (2 , 3), E (5 , 3), and F (5 , 5).

Then find its image under the rotation 180° about the origin

$D'(-2, -3), E'(-5, -3), F'(-5, -5)$



- 2 A card was drawn randomly from a set of identical cards numbered from 0 to 10. Find the probability that the drawn card carries:

- a) A number that is a multiple of 5. $\frac{2}{11}$
 b) A number greater than 7 $\frac{3}{11}$

- 3 Find the S.S of $3(x + 2) \geq 2(x + 1)$, If the substitution set is N

$3x + 6 \geq 2x + 2 \Rightarrow x \geq -4$ S.S = $\{0, 1, 2, 3, \dots\}$

- 4 If $(2x + 1)$ is a factor of the expression $(2x^2 - 7x - 4)$, then find the other factor?

$(x - 4)$

- 5 A trapezium with an area of 150 square meters has bases measuring 10 meters and 20 meters. Calculate its height

$A = \frac{1}{2}(b_1 + b_2) \times h \Rightarrow 300 = 30 \times h \Rightarrow h = 10 \text{ cm}$

- 6 Calculate the value of the following in scientific notation:

$(5.4 \times 10^4) + (3.7 \times 10^5)$

$10^4(5.4 + 3.7 \times 10) = 10^4(5.4 + 37) = 4.24 \times 10^5$

- 7 Find in the simplest form: $(a + b)^2 - (a + b)(a - b)$

$a^2 + b^2 + 2ab - (a^2 - b^2) \Rightarrow 2b^2 + 2ab$



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Q1: CHOOSE THE CORRECT ANSWER

$$\begin{array}{r} x+7 \\ x-2 \overline{) x^2+5x-m} \\ \underline{x^2+2x} \\ 3x-m \\ \underline{3x-14} \\ 14-m \end{array}$$

1 What is the value of m that's make $x^2 + 5x - m$ divisible by $x - 2$?

(a) 12

(b) 16

(c) 14

(d) 15

2 Half of $4^{20} = \dots\dots\dots$

(a) 4^{10}

(b) 2^{39}

(c) 2^{20}

(d) 4^{19}

3 The image of the point by $R(O, -90^\circ)$ followed by $R(O, 90^\circ)$ is $(4, 7)$.

(a) $(-4, -7)$

(b) $(7, 4)$

(c) $(-7, -4)$

(d) $(4, 7)$

4 If the volume of a cube is 64 cm^3 : then its edge length is cm.

(a) 4

(b) 8

(c) 16

(d) 64

5 The probability of an event that is impossible is

(a) 0

(b) 1

(c) $\frac{1}{2}$

(d) $\frac{1}{3}$

6 Which of the following is the greatest?

(a) 6.3×10^5

(b) 9.8×10^4

(c) 5.2×10^5

(d) 7.3×10^4

7 The area of the square whose diagonal length is 6 cm. equals cm^2 .

(a) 12

(b) 18

(c) 24

(d) 36

8 The image of the point $(0, 8)$ by the translation $(3, -5)$ followed by reflection in the X-axis is

(a) $(-3, -3)$

(b) $(-3, 3)$

(c) $(3, -3)$

(d) $(3, 3)$

9 $\sqrt[3]{-64} + \sqrt{16} = \dots\dots\dots$

(a) zero

(b) -8

(c) 8

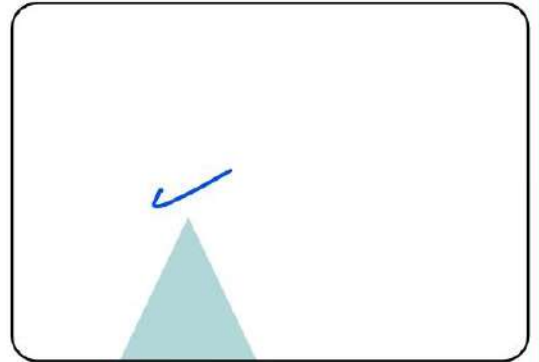
(d) ± 8



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Q2: ANSWER THE FOLLOWING

- 1 Draw triangle XYZ where:
 $XY = 5$ cm, $YZ = 8$ cm,
 $XZ = 7$ cm, Determine its type according
to the measures of its angles.



- 2 A trapezium has an area of 315 square centimeters, a height of 15 cm, and
the ratio between the lengths of its bases is 3 : 4. What is the length of each base?

Handwritten solution for Q2:
Let two base = $3x, 4x$
 $315 = \frac{1}{2}(3x + 4x) \times 15$
 $630 = 7x \times 15 \div 15$
 $7x = 42$
 $x = 6$
 $b_1 = 3x = 3 \times 6 = 18$
 $b_2 = 4x = 4 \times 6 = 24$

- 3 $(x + 7)(x - 7) = x^2 + (\dots)$

- 4 Find the value of b that makes the expression $(4x^2 + 11x + b)$
divisible by $(4x - 1)$

Handwritten solution for Q4:
 $b = -3$

$$\begin{array}{r} x+3 \\ 4x-1 \overline{) 4x^2+11x+b} \\ \underline{4x^2-x} \\ 12x+b \\ \underline{12x-3} \\ b+3 \end{array}$$

- 5 Simplify: $\frac{x^3 \times x^{-2}}{x^{-5} \times x}$, Then find the numerical value of the result when: $x = 2$

Handwritten solution for Q5:
 $\frac{x^3 \times x^5}{x^2 \times x} = \frac{x^8}{x^3} = x^5$
at $x = 2 = 2^5 = 32$

- 6 If a and b are the two square roots of c where $c \neq 0$, complete the following :

a) $a + b = \dots$ Handwritten: $5 + (-5) = 0$

b) $\frac{a}{b} = \dots$ Handwritten: $\frac{5}{-5} = -1$

- 7 A bag contains 30 balls: 8 black, 12 white, and 10 red. If a ball is drawn at
random, find the probability that the ball:

a) is white. Handwritten: $\frac{12}{30} = \frac{2}{5}$

b) is not white. Handwritten: $\frac{18}{30} = \frac{3}{5}$

c) is either red or white. Handwritten: $\frac{22}{30} = \frac{11}{15}$



Q1: CHOOSE THE CORRECT ANSWER

- 1 $(x^3 + x^2) \div x^2 = \dots$
 $\frac{x^3 + x^2}{x^2} = \frac{x^3}{x^2} + \frac{x^2}{x^2} = x + 1$
 (a) 0 (b) x (c) $x + 1$ (d) $2x + 1$
- 2 The solution set of the inequality: $-4x > 3$ in \mathbb{Z}^+ is
 $x < -\frac{3}{4}$
 (a) $\{0, -1, -2, \dots\}$ (b) $\{0, 1, 2, 3, 4, \dots\}$ (c) $\{0\}$ (d) \emptyset
- 3 If $0.00043 = 4.3 \times 10^n$, Then $n = \dots$
 (a) -5 (b) -4 (c) 4 (d) 5
- 4 The identity rotation is a rotation with an angle of measure
 (a) 90° (b) 180° (c) 270° (d) 360°
- 5 The perimeter of the rectangle whose dimensions are $8x$, $5x$ is
 $(13x) \times 2 = 26x$
 (a) ~~$40x^2$~~ (b) $13x$ (c) $40x$ (d) $26x$
- 6 If the image of the point $(k - 4, 7)$ by reflection in y-axis is itself, then $k = \dots$
 $k - 4 = 0$
 (a) 7 (b) 11 (c) 3 (d) 4
- 7 The probability of a certain event is
 (a) 0 (b) 1 (c) $\frac{1}{2}$ (d) $\frac{1}{3}$
- 8 If $x^2 = 16$, $y^2 = 9$ and $xy = 12$, then $(x - y)^2 = \dots$
 $x^2 + y^2 - 2xy = 16 + 9 - 24 = 1$
 (a) 49 (b) 165 (c) -1 (d) 1
- 9 Drawing a card from a set of identical numbered cards where all cards have the same number without knowing the numbers written on the cards is
 (a) A random experiment (b) An impossible event
 (c) Not a random experiment (d) A certain event



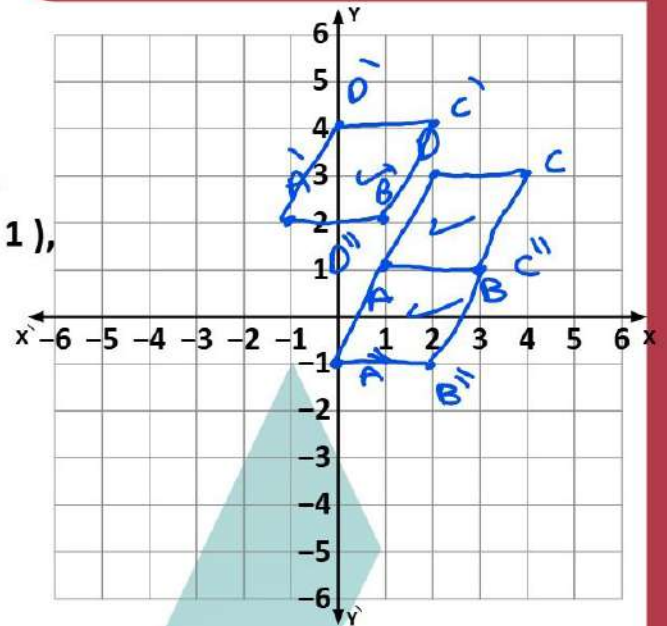
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Q2: ANSWER THE FOLLOWING

- 1 Draw the rhombus A B C D where A (1 , 1), B (3 , 1), C (4 , 3), and D (2 , 3).

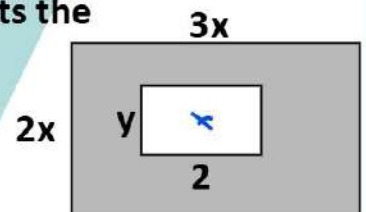
Then draw its image by the translation $(-2, 1)$ followed by translation $(1, -3)$

$$\begin{aligned} A(-1, 2) &\rightarrow A''(0, -1) \\ B(-1, 2) &\rightarrow B''(2, -1) \\ C(-2, 4) &\rightarrow C''(3, 1) \\ D(0, 4) &\rightarrow D''(1, 1) \end{aligned}$$



- 2 Find in the simplest form the expression which represents the shaded part of the opposite figure:

$$\begin{aligned} \text{Total} &= (2x)(3x) = 6x^2 \quad \text{white} = 2y \\ \text{shaded} &= 6x^2 - 2y \end{aligned}$$



- 3 If the probability of occurrence of an event equals the probability of not its' occurrence, then the probability of this event = $\frac{1}{2}$

- 4 Find the S.S of $4(x+3) > 7x-9$ If the substitution set is Q

- 5 Put in the scientific notation : 0.000014×10^2

$$1.4 \times 10^{-3}$$

- 6 A player attempted to the goal 50 shoots, he scored 35 of them, find the experimental probability of:

- (a) scoring the goal (G) $\frac{35}{50} = \frac{7}{10}$ ✓
(b) not scoring the goal (F) $\frac{15}{50} = \frac{3}{10}$

$$\frac{15}{50} = \frac{3}{10}$$

- 7 A rectangle with area is $(6x^3 + 7x^2 - 18x + 5) \text{ cm}^2$, and length $(3x^2 - 4x + 1) \text{ cm}$ Then find its width.

$$\text{width} = 2x + 5$$

$$\begin{array}{r} 2x+5 \\ 3x^2-4x+1 \overline{) 6x^3+7x^2-18x+5} \\ \underline{6x^3-8x^2+2x} \\ 15x^2-20x+5 \\ \underline{15x^2-20x+5} \\ 0 \end{array}$$



Q1: CHOOSE THE CORRECT ANSWER

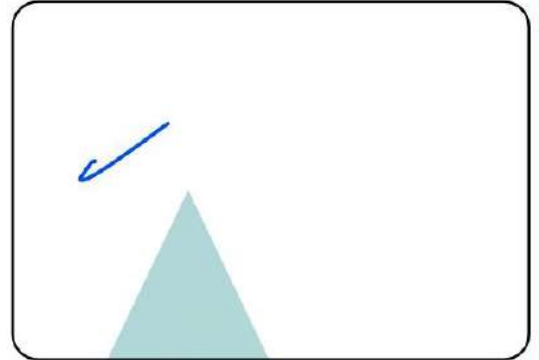
$$\frac{180}{9} = \frac{9d}{9} = 20$$

- 1 The area of a rhombus is 90 cm^2 , and one diagonal is 9 cm.
What is the other diagonal?
(a) 10 cm (b) 15 cm (c) 18 cm (d) 20 cm
- 2 $\sqrt[3]{(-8)^2} = \dots\dots\dots$ $\sqrt[3]{64} = 4$
(a) -4 (b) -2 (c) 2 (d) 4
- 3 $k(3m + 2) = 36 \text{ m}^2 + 24 \text{ m}$, then $k = \dots\dots\dots$ 12 m
(a) 12 m (b) 12 (c) 18 m (d) 6 m
- 4 If $0.0000503 = m \times 10^{-5}$, Then $m = \dots\dots\dots$ 5.03
(a) 503 (b) 5.03 (c) 50.3 (d) 0.503
- 5 The image of the point (4, -3) by translation 3 units to the left is
(a) (7, -3) (b) (1, -3) (c) (4, -6) (d) (4, 0)
- 6 If $\frac{a}{7} > \frac{b}{9}$, then $9a \dots\dots\dots 7b$
(a) > (b) < (c) = (d) \leq
- 7 Which of the following could be a probability of an event?
(a) ~~-0.5~~ (b) 49% (c) ~~$\frac{3}{2}$~~ (d) ~~$1\frac{1}{3}$~~
- 8 What is the image of the point (-3, 5) by reflection in the x-axis followed by reflection in the y-axis again?
(a) (3, -5) (b) (-3, -5) (c) (-3, 5) (d) (3, 5)
- 9 The volume of a cuboid whose dimensions are 5x cm, 2x cm, and 2x cm, is cm^3 .
(a) 9x (b) $20x^2$
(c) $9x^3$ (d) $20x^3$



Q2: ANSWER THE FOLLOWING

- 1 Draw $\angle ABC$ of measure 120° , then bisect it using a ruler and compass by the bisector BD showing the steps of the solution. Verify by using a protractor that $m(\angle ABD) = m(\angle CBD)$



- 2 Determine the height of a trapezium with an area of 200 square meters and bases measuring 15 meters and 25 meters.

$$\frac{15+25}{2} \times H = 200 \quad H = 10 \text{ m}$$

- 3 Find the solution set of the following inequality in Z: $x - 3(x - 5) \geq x + 7$

$$x - 3x + 15 \geq x + 7 \quad -2x + 15 \geq x + 7 \quad -3x \geq -8 \quad x \leq \frac{8}{3}$$

- 4 The sum of probabilities of all possible outcomes of any random experiment =

$$S.S = \{2, 1, 1, 0, \dots\} \quad x \leq \frac{8}{3} \quad x \leq 2\frac{2}{3}$$

- 5 Find the S.S of the following in Q:

a) $(x - 1)^3 = 216$

$$x - 1 = 6 \quad x = 7 \quad S.S = \{7\}$$

b) $3x^2 + 75 = 0$

$$3x^2 = -75 \quad x^2 = -25 \quad S.S = \emptyset$$

- 6 A class has 15 student, 4 of them with black hair, 5 with brown hair, and 6 with yellow hair, if a student is chosen at random, find the probability that the student is:

a) his hair is black. $\frac{4}{15}$

b) his hair is not yellow. $\frac{9}{15} = \frac{3}{5}$

- 7 Find the quotient of: $(9x^4 + 6x^3 + 12x^2)$ by $3x$

$$3x^3 + 2x^2 + 4x$$



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Q1: CHOOSE THE CORRECT ANSWER

- 1 If $x^2 = 10$, $y^2 = 7$, then $(x + y)(x - y) = \dots\dots\dots$
 $\frac{x^2 - y^2}{10 - 7 = 3}$
 (a) 70 (b) 17 (c) 3 (d) -3
- 2 The image of the point $(-1, -4)$ by reflection in the $\dots\dots\dots$ is $(1, -4)$
 (a) x-axis (b) y-axis (c) origin point (d) otherwise
- 3 If $0.000809 = m \times 10^{-4}$, Then $m = \dots\dots\dots$
 (a) 809 (b) 8.09 (c) 80.9 (d) 0.809
- 4 $(2x)^4 = \dots\dots\dots$
 $16x^4$
 (a) $2x^4$ (b) $16x$ (c) $16x^4$ (d) $16x^2$
- 5 The multiplicative inverse of the number $(-1)^{45}$ is $\dots\dots\dots$
 $\frac{1}{-1} = -1$
 (a) $(-1)^{43}$ (b) $(-1)^{44}$ (c) $(1)^{43}$ (d) $(1)^{44}$
- 6 The coefficient of xy in $(2x + 3y)^2$ is $\dots\dots\dots$
 $12xy$
 (a) 1 (b) 5 (c) 6 (d) 12
- 7 A square has a diagonal of 16 cm. What is the area of the square?
 $8 \times 16 = 128$
 (a) 128 cm^2 (b) 100 cm^2 (c) 144 cm^2 (d) 256 cm^2
- 8 The inequality which represent the maximum speed of a car is 80 km/hr is $\dots\dots\dots$
 (a) $x > 80$ (b) $x < 80$ (c) $x \geq 80$ (d) $x \leq 80$
- 9 What is the event of getting the same outcome on both tosses when tossing a fair coin twice?
 HT, TH, HH, TT
 (a) {HH, HT} (b) {HH, TT} (c) {HT, TH} (d) {HT, TT}

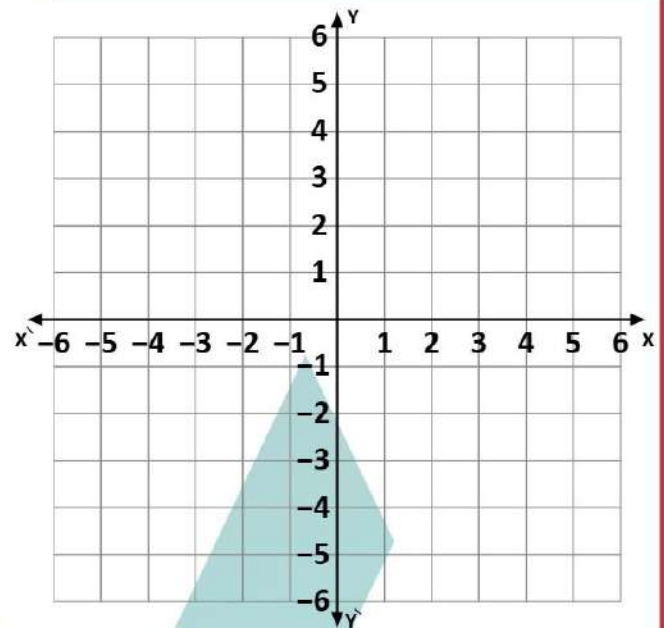


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Q2: ANSWER THE FOLLOWING

- 1 Draw triangle A B C on a grid where A (1 , 2), B (1 , - 1), and C (5 , 2). Then draw its image under the rotation R (O , - 90°).

$A' (2, -1)$ $B' (-1, -1)$
 $C' (2, -5)$



- 2 Find $\frac{36x^4y - 15xy^2}{18xy}$ in the simplest form

$\frac{15}{18} = \frac{5}{6}$

$2x^3 - \frac{5}{6}y$

- 3 A fair coin is tossed 100 times, and the head appeared 41 times, Find the experimental probability of appearing:

a The head (H) $\frac{41}{100} =$

b The tail (T) $\frac{59}{100}$



- 4 Simplify the following to the simplest form: $(\frac{-1}{2})^2 \times \sqrt{\frac{81}{25}} \times \frac{4}{3}$

$\frac{1}{4} \times \frac{9}{5} \times \frac{4}{5} = \frac{9}{5}$

- 5 Calculate the value of the following in the scientific notation:
 $(3.6 \times 10^8) \times (1.8 \times 10^3)$

$(10^8 \times 10^3) \times (3.6 \times 1.8) = 10^{11} \times 6.48 = 6.48 \times 10^{11}$

- 6 A trapezium with a middle base of 19 cm and a height of 5 cm. What is its area?

$A = \frac{1}{2} \times 19 \times 5 = 47.5 \text{ cm}^2$

- 7 In the experiment of A fair coin is tossed 50 times, and the head appeared 32 times, then the experimental probability of appearing of tail

$\frac{18}{50} = \frac{9}{25}$



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Q1: CHOOSE THE CORRECT ANSWER

- 1 If $(6x^2y^3 + kxy) \div 6x = xy^3 - 12y$ where $(x \neq 0)$, then $|k| = \dots\dots\dots$
 (a) -72 (b) -2 (c) 2 (d) 72
- 2 If $(x - y)(2x + y) = 2x^2 + kxy - y^2$, then $k = \dots\dots\dots$
 (a) 3 (b) 4 (c) -1 (d) 1
- 3 $\frac{3^x}{3^{-y}} = \dots\dots\dots$
 (a) $-\frac{x}{y}$ (b) 3^{x+y} (c) 3^{x-y} (d) 3^{x+y}
- 4 In a single roll of a fair die, the probability of getting an even number is $\dots\dots\dots$
 (a) $\frac{1}{6}$ (b) $\frac{1}{4}$ (c) $\frac{1}{2}$ (d) $\frac{1}{3}$
- 5 The scientific notation of the number 750×10^{-6} is $\dots\dots\dots$
 (a) 7.5×10^{-8} (b) 7.5×10^{-7} (c) 7.5×10^{-4} (d) 7.5×10^4
- 6 What is the image of the point $(2, -3)$ after reflection in the x-axis followed by reflection in the y-axis?
 (a) $(2, 3)$ (b) $(-2, -3)$ (c) $(-2, 3)$ (d) $(2, -3)$
- 7 If $-x > 4$, then $\dots\dots\dots$
 (a) $x > 4$ (b) $x < 4$ (c) $x < -4$ (d) $x > -4$
- 8 What is the image of the point $(-3, 0)$ under rotation $R(O, 90)$ followed by rotation $R(O, -90)$?
 (a) $(3, 0)$ (b) $(0, 3)$ (c) $(0, -3)$ (d) $(-3, 0)$
- 9 Which of the following rotations makes $A'(x, -y)$ is the image of $A(-x, y)$?
 (a) $R(O, 90^\circ)$ (b) $R(O, -90^\circ)$ (c) $R(O, 360^\circ)$ (d) $R(O, 180^\circ)$



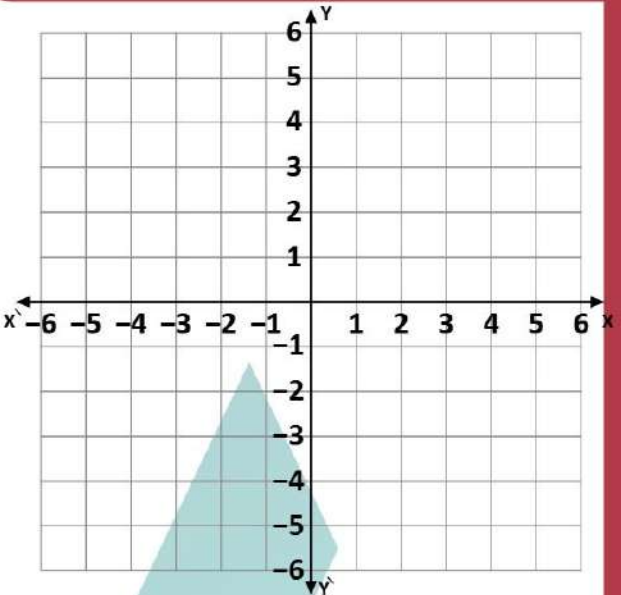
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Q2: ANSWER THE FOLLOWING

- 1 Draw the triangle A B C where A (2, -2), B (6, -2), and C (4, 2).

Then find its image under the rotation 90° anti-clockwise about the origin.

Counter (0, 90) ✓
Clock (0, -90)
A' (2, 2)
B' (2, 6)
C' (-2, 4)



- 2 A square whose area is 0.81 cm^2 , Find its perimeter.

$$s = \sqrt{0.81} = 0.9 \text{ cm} \quad p = 0.9 \times 4 = 3.6 \text{ cm}$$

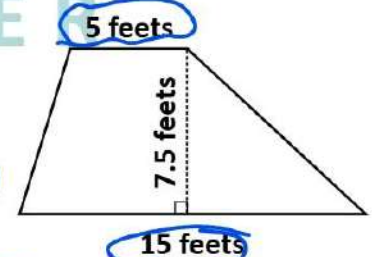
- 3 Simplify to the simplest form the expression: $2x(2x + 1) + 3x(x + 2)$, then find the numerical value of the expression when $x = -1$

$$4x^2 + 2x + 3x^2 + 6x = 7x^2 + 8x \quad \text{at } x = -1 \quad 7(-1)^2 - 8 = -1$$

- 4 A class has 40 student, a student has been chosen randomly, if the probability that the student not wearing a medical glasses is $\frac{5}{8}$, then the number of students who wearing a medical glasses = 15 Students.

- 5 Find the area of the trapezium:

$$A = \frac{1}{2} (5 + 15) \times 7.5 = 75 \text{ feet}^2$$



- 6 Find the solution set of the following inequality in Z: $x - 3(x - 5) \geq x + 7$

$$x - 3x + 15 \geq x + 7 \quad -2x \geq -8 \quad x \leq \frac{8}{2} = 4$$

- 7 Find the quotient of: $x^3 - 64$ by $x - 4$

$$\begin{array}{r} x^2 + 4x + 16 \\ x-4 \overline{) x^3 - 64} \\ \underline{x^3 - 4x^2} \\ 4x^2 - 64 \\ \underline{4x^2 - 16x} \\ 16x - 64 \\ \underline{16x - 64} \\ 0 \end{array}$$



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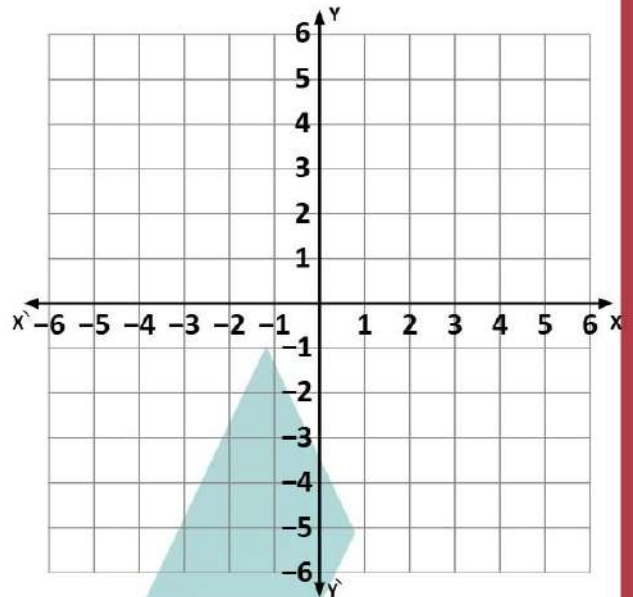
Q1: CHOOSE THE CORRECT ANSWER

- 1 The triangle whose base length is 12 cm. and its area is 48 cm^2 , then the corresponding height is cm $\frac{1}{2} b \times h$
- (a) 3 (b) 4 (c) 6 (d) 8
- 2 The total probability of all possible outcomes of a random experiment is
- (a) 0 (b) 1 (c) $\frac{1}{2}$ (d) $\frac{2}{3}$
- 3 The S.S of the equation: $x^2 + 9 = 0$ in Q is
- (a) $\{-9\}$ (b) $\{-3, 3\}$ (c) $\{-3\}$ (d) \emptyset
- 4 $\div 5m = 25 \text{ m}^2 n$
- (a) $125 \text{ m}^2 n$ (b) $125 \text{ m}^3 n$ (c) $\text{m}^3 n$ (d) $25 \text{ m}^3 n$
- 5 The quotient of $x^2 + 3x - 40$ by $x + 8$ equals
- (a) $x + 13$ (b) $x + 5$ (c) $x - 5$ (d) $x - 13$
- 6 If $x - y = 4$ and $x + y = 10$, then $x(x - y) + y(x - y) = \dots$
- (a) 4 (b) 6 (c) 14 (d) 40
- 7 If $y^{22} + y^{23} = 0$, then $y = \dots$
- (a) -1 (b) 1 (c) 2 (d) -2
- 8 Which of the following is the smallest ?
- (a) 314×10^3 (b) 3.14×10^4 (c) 31.4×10^5 (d) 0.314×10^6
- 9 The image of the point $(0, -4)$ by reflection in the is itself
- (a) x-axis (b) y-axis (c) origin point (d) otherwise



FOLLOW US

Q2: ANSWER THE FOLLOWING



- 1 Reflect $\triangle BCD$ with vertices $B(2, -1)$, $C(4, -3)$, and $D(3, -5)$ over the x -axis. Draw the reflected triangle.

$B'(2, 1)$
 $C'(4, 3)$
 $D'(3, 5)$ ✓

- 2 Reduce: $(x - 3)^2 - (x - 3)(x + 3)$

$$x^2 + 9 - 6x - (x^2 - 9) \Rightarrow x^2 + 9 - 6x - x^2 + 9 = -6x + 18$$

- 3 $28a^4b^2 \div 14a = 2a^3b^2$

- 4 Find the length of the diagonal of a square whose area is equal to the area of a rhombus with diagonal lengths of 4 meters and 25 meters.

A. of Rhombus = $\frac{1}{2} \times 4 \times 25 = 50 \text{ cm}^2$ / $50 = \frac{1}{2}d^2$ $d^2 = 100$
 $d = 10$

- 5 Find the area of the opposite rectangle in terms of x . Calculate the numerical value of the area when $x = 2 \text{ cm}$

$5x(x^2 + 3x + 4) = 5x^3 + 15x^2 + 20x$

- 6 Find the solution set of: $3(7x - 1) \leq 20x - 1$ in \mathbb{Z} .

$21x - 3 \leq 20x - 1$ // $x \leq 2$ at $x=2$ $5 \times 8 + 15 \times 4 + 20 \times 2 = 40 + 60 + 40 = 140 \text{ cm}^2$

- 7 In the experiment of forming a two-digit number of different digits from the set of digits $\{1, 3, 4\}$, if one of these numbers is chosen at random,

find the probability that number is: $S = \{13, 14, 31, 34, 41, 43\}$

(a) divisible by 3. $\frac{0}{6} = \text{zero}$

(b) its Ones digit = its Tens digit. $\frac{0}{6} = \text{zero}$



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Q1: CHOOSE THE CORRECT ANSWER

1 The height of a trapezium is 6 cm. If the area is 90 cm², and one base is 10 cm, then the second base equals

(a) 15 cm

(b) 20 cm

(c) 10 cm

(d) 12 cm

2 $\frac{a+b}{c} = \dots\dots\dots$

(a) $\frac{a+b}{c}$

(b) $\frac{a}{b+c}$

(c) $\frac{a}{c} + \frac{b}{c}$

(d) $\frac{ab}{c}$

3 $(-\frac{3}{5})^{-3} = \dots\dots\dots$

(a) $-\frac{27}{125}$

(b) $-\frac{125}{27}$

(c) $\frac{27}{125}$

(d) $\frac{125}{27}$

4 If $(x-y)(2x+y) = 2x^2 + kxy - y^2$, then $k = \dots\dots\dots$

(a) 3

(b) 4

(c) -1

(d) 1

5 The image of the point $(-1, 5)$ after a 90° clockwise rotation is?

(a) $(5, 1)$

(b) $(-5, 1)$

(c) $(1, -5)$

(d) $(-1, 5)$

6 3 belongs to the solution set of the inequality:, where $x \in \mathbb{Z}$

(a) $x < 3$

(b) $-x < -3$

(c) $x < 3$

(d) $-x \geq -3$

7 The square whose area is 10 cm^2 , its side length is cm

(a) 100

(b) $\sqrt{10}$

(c) 10

(d) $\sqrt{100}$

8 If the volume of a cuboid is $(x^2 + 14x + 49) \text{ cm}^3$, and its base area is $(x+7) \text{ cm}$, then the height = cm.

(a) $x+6$

(b) $x+5$

(c) $x+7$

(d) $x+9$

9 The image of the point by translation $(2, 0)$ followed by translation $(0, 2)$ is $(4, 7)$.

(a) $(6, 9)$

(b) $(2, 7)$

(c) $(4, 5)$

(d) $(2, 5)$

$$90 = \frac{1}{2} \times (b+10) \times 6$$

$$90 = 3(b+10)$$

$$30 = b+10$$

$$b = 20$$

$$(-\frac{3}{5})^{-3} = (-\frac{5}{3})^3 = -\frac{125}{27}$$

$$(x-y)(2x+y) = 2x^2 + kxy - y^2$$

$$2x^2 + (k-2)xy - y^2 = 2x^2 + kxy - y^2$$

$$k-2 = k$$

$$k = -1$$

$$(x+7)(x+7) = x^2 + 14x + 49$$

$$(x+7)(x+7) = x^2 + 14x + 49$$

$$(x+7)(x+7) = x^2 + 14x + 49$$



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Q2: ANSWER THE FOLLOWING

- 1 Draw a line segment AB of length 5 cm, and bisect it using a ruler and compass. Verify by measuring that the bisection is accurate.



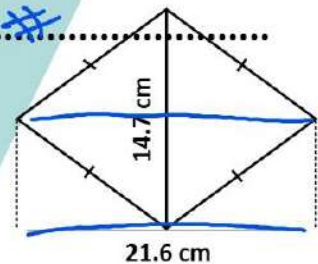
- 2 Simplify: $(x - 3)(x + 4) + 9$, then find numerical value of the result when $x = 5$

$$x^2 + 4x - 3x - 12 + 9 \Rightarrow x^2 + x - 3$$

$$\text{at } x = 5 \quad 25 + 5 - 3 = \boxed{27} \quad \#$$

- 3 Find the area of the opposite figure:

$$\frac{1}{2} \times 14.7 \times 21.6 = 158.76 \text{ cm}^2$$



- 4 Divide $(-3x^2 + x^3 - x + 6)$ by $(x - 2)$, then find the numerical value of the quotient when $x = 2$

$$x^3 - 3x^2 - x + 6$$

$$x - 2 \overline{) x^3 - 3x^2 - x + 6}$$

$$x^3 - 2x^2 \quad \underline{-}$$

$$-x^2 - x + 6$$

$$-x^2 + 2x \quad \underline{-}$$

$$-3x + 6$$

$$-3x + 6 \quad \underline{-}$$

$$0$$

$$\text{at } x = 2 \quad 4 - 2 = 2$$

- 5 If $0 \leq P(A) \leq \dots$ where A is an event

- 6 Find the following in scientific notation:

$$(3.2 \times 10^3) + (2.5 \times 10^4)$$

$$10^3 (3.2 + 25) = 10^3 \times 28.2 = 2.82 \times 10^4$$

- 7 A card was drawn randomly from a set of identical cards numbered from 8 to 17. Find the probability that the drawn card carries:

- a A number greater than 12 $\frac{5}{10} = \frac{1}{2}$

- b A perfect square $\frac{2}{10} = \frac{1}{5}$ #



Q1: CHOOSE THE CORRECT ANSWER

1. If $\frac{x}{-3} < 2$, then x -6

$$x > -6$$

- (a) $>$ (b) $<$ (c) $=$ (d) \geq

2. If $(4x - 5)^2 = ax^2 + bx + c$, what is the value of a ?

- (a) 20 (b) -20 (c) 16 (d) -10

3. If $3y$ is the side length of a square, then its area equals

- (a) $12y$ (b) $9y$ (c) $9y^2$ (d) $81y^2$

4. The number which is in scientific notation from the following is

- (a) 11×10^8 (b) 9.7×10^{-5} (c) 10.2×10^{-2} (d) 0.87×10^8

5. Which of the following points is the same point by reflection in the x-axis?

- (a) $(-3, 0)$ (b) $(0, -3)$ (c) $(1, -3)$ (d) $(-3, 1)$

6. $\left(\frac{a}{b}\right)^5 \times \frac{b^5}{a^5} = \dots\dots\dots$ (where $a \neq \text{zero}$, $b \neq \text{zero}$)

- (a) $\left(\frac{a}{b}\right)^{10}$ (b) $\frac{a}{b}$ (c) ab (d) $(xy)^{\text{zero}}$

7. A square has a side length of S and an Area A .
What is the area of square whose diagonal is $2S$?

- (a) A (b) $2A$ (c) $4A$ (d) A^2

8. If a fair coin is flipped three times in a row, the probability of getting heads all three times is

- (a) $\frac{1}{6}$ (b) $\frac{1}{4}$ (c) $\frac{1}{2}$ (d) $\frac{1}{8}$

9. If the quotient of $(x^2 - 2x - 35)$ divided by $(x + 5)$ is $(x + b)$, what is the value of b ?

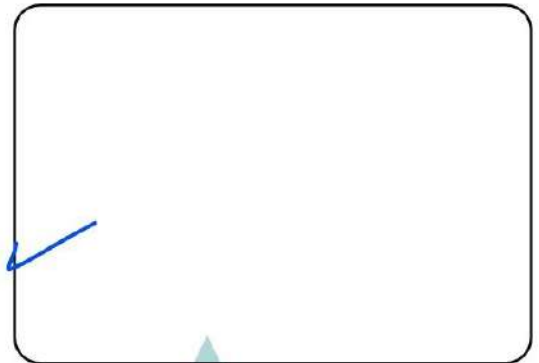
- (a) -7 (b) 5
(c) -5 (d) 7



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Q2: ANSWER THE FOLLOWING

- 1 Draw equilateral triangle ABC in which its side length is 5 cm.
Then verify its type according to its angles.



- 2 If $3^x = 7$, Find the value of 3^{x+1}

$$3^x \times 3^1 = 7 \times 3 = 21$$

- 3 A rhombus has diagonal of lengths $(3x + 6)$ meters, and $(x + 1)$ meters.
Find its area in terms of x , and then find the numerical value of the area when $x = 1$

$$A = \frac{1}{2} \times (3x + 6)(x + 1) = \frac{1}{2} (3x^2 + 3x + 6x + 6) = \frac{1}{2} (3x^2 + 9x + 6)$$

- 4 If $(x - 4)$ is a factor of the expression $(x^2 - 5x + 4)$. Find the other factor

$$(x - 1)$$

- 5 Find the S.S for each of the following in Z:

a $2(x + 5) - 7 > 9$ $x > 3$

$$2x + 10 - 7 > 9 \Rightarrow 2x > 6 \Rightarrow x > 3$$

a $2x^2 + 1 = 33$

$$2x^2 = 32 \Rightarrow x^2 = 16 \Rightarrow x = \pm 4 \text{ S.S} = \{4, -4\}$$

- 6 Write in scientific notation : 0.0030305×10^{10}

$$3.0305 \times 10^7$$

- 7 A box contains 7 red balls, 8 green balls and 5 yellow balls. One ball is drawn randomly. Find the probability of getting :

a A green ball. $\frac{8}{20} = \frac{2}{5}$

b A ball not yellow. $\frac{15}{20} = \frac{3}{4}$

c A red ball. $\frac{7}{20}$

d A blue ball. $\frac{0}{20} = 0$



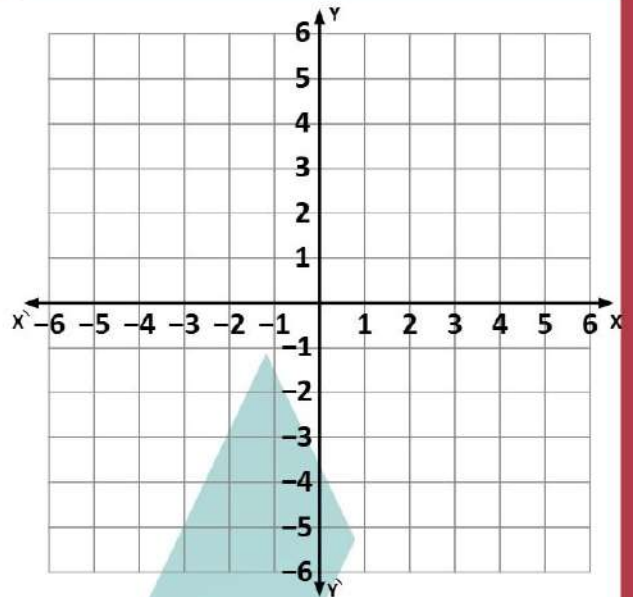
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Q1: CHOOSE THE CORRECT ANSWER

- 1 The image of the point $(2, -3)$ by rotation about the origin with an angle of measure 180° is $(-2, 3)$
- (a) $(-2, -3)$ (b) $(3, 2)$ (c) $(-2, 3)$ (d) $(2, 3)$
- 2 $\div (-2x^2y) = 12xy^2$ $-24x^3y^3$
- (a) $6xy$ (b) $-6xy$ (c) $24x^3y^3$ (d) $-24x^3y^3$
- 3 The area of a square whose side length is $\sqrt{3}$ cm is cm^2 $(\sqrt{3})^2$ $\sqrt{3} \times \sqrt{3}$
- (a) $4x\sqrt{3}$ (b) 9 (c) 3 (d) 6
- 4 If the area of a trapezium is 120 cm^2 , and its bases are 20 cm and 10 cm, Then the height = cm
- (a) 4 (b) 6 (c) 8 (d) 10
- 5 If $(x+5)(x-5) = x^2 + b$, then $b = \dots\dots\dots$ $x^2 - 25$
- (a) 25 (b) -25 (c) 10 (d) -10
- 6 If $x > 7$, then $-x \dots\dots\dots$ -7
- (a) > -7 (b) ≥ -7 (c) < -7 (d) < -7
- 7 In the experiment of tossing a fair coin twice, how many elements are in the sample space?
- (a) 2 (b) 4 (c) 8 (d) 16
- 8 A rectangle whose length is $3x^2$ cm, and its width is $5x$ cm, then its area is cm^2 $15x^3$
- (a) $15x$ (b) $15x^2$ (c) $8x^3$ (d) $15x^3$
- 9 $6y(3y^2 - 4y + 2) = \dots\dots\dots$ $18y^3 - 24y^2 + 12y$
- (a) $18y^3 + 24y^3 + 12y$ (b) $18y^3 - 4y + 2$
- (c) $18y^2 - 24y + 2$ (d) $18y^3 - 24y^2 + 12y$



Q2: ANSWER THE FOLLOWING



- 1 Draw triangle ABC, A (2 , - 1), B (4 , 2), and C (3 , 5). Then draw the image of triangle ABC under rotation $R (O , 90^\circ)$ followed by rotation $R (O , 180^\circ)$.

$A'(1, 2) \rightarrow A''(-1, -2)$
 $B'(-2, 4) \rightarrow B''(2, -4)$
 $C'(-5, 3) \rightarrow C''(5, -3)$

- 2 Simplify the following to the simplest form: $1 \frac{1}{3} \times \sqrt{\frac{81}{16}} \times (\frac{1}{2})^0$

$1\frac{1}{3} \times \frac{9}{4} \times 1 = 3$

- 3 Divide $(x^2 + 20x + 75)$ by $(x + 5)$, then find the numerical value of the quotient when $x = 3$

$x+15$ at $x=3$

$q \Rightarrow 3+15 = 18$

$$\begin{array}{r} x+15 \\ x+5 \overline{) x^2+20x+75} \\ \underline{x^2+5x} \\ 15x+75 \\ \underline{15x+75} \\ 0 \end{array}$$

- 4 A trapezium has an area of 175 square meters, and the lengths of its two parallel bases are 14 meters and 21 meters. Find its height.

35 175 $h = 175 \div 17.5 = 10 \text{ cm}$

- 5 Find the expansion of: $(2x + 4)^2$

$4x^2 + 16 + 16x \Rightarrow 4x^2 + 16x + 16$

- 6 Write in the scientific notation: $(2.4 \times 10^5) - (4.2 \times 10^4)$

$10^4 (24 - 4.2) = 19.8 \times 10^4 \Rightarrow 1.98 \times 10^5$

- 7 A card was drawn randomly from a set of identical cards numbered from 0 to 10. Find the probability that the drawn card carries:

a A number that is a multiple of 5. $\frac{2}{11}$

b A number greater than 7 $\frac{3}{11}$



FOLLOW US

حمل الآن

مجانا وحصريا

امتحانات رقم (7)

الترم الثاني



Q1 Choose the correct answer

- 1 If $a + b = 4$, and $a - b = 3$, then what is the value of $a^2 - b^2$?
 (a) 7 (b) 12 (c) 1 (d) -1
- 2 What is the standard form of the number -3.2×10^4 ?
 (a) - 32 000 (b) - 0.00032 (c) - 320 000 (d) - 0.00032
- 3 What is the image of the point $(-2, 1)$ by rotation $R(O, 180^\circ)$?
 (a) $(2, 1)$ (b) $(1, 2)$ (c) $(-1, -2)$ (d) $(2, -1)$
- 4 If $(5x^2 + 15x) \div (-5x) = ax - 3$, then what is the value of a ?
 (a) $-x$ (b) -1 (c) 1 (d) x
- 5 Which of the following equals $2 \times 2 \times 2 \times 2 \times 2$
 (a) 2×5 (b) 5^2 (c) 2^5 (d) $2 + 5$
- 6 $(2ab)(2a + 2b) = \text{-----}$
 (a) $4a^2b + 4ab^2$ (b) $4a^2b^2$ (c) $4ab^2$ (d) $2ab^2 + 2a^2b$
- 7 If $-\sqrt{4} = \sqrt[3]{a}$, then what is the value of a?
 (a) -2 (b) 4 (c) 8 (d) -8
- 8 If the area of a square is 50 square meters , then the length of its diagonal is ----- meters
 (a) 100 (b) 10 (c) 25 (d) 5
- 9 Selecting a ball from a basket containing 4 identical balls, all are red is -----
 (a) a random experiment. (b) not a random experiment.
 (c) an impossible event. (d) a simple event.

Q2 Answer the following

- 1** A square piece of agricultural land with a diagonal length of 8 kilometers. Find its area.

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- 2** Simplify to its simplest form : $(2x - 5)(2x + 5) + 25$
then find the numerical value of the result when $x = 2$

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- 3** Find the simplest form of : $\sqrt{\frac{9}{4}} + \sqrt[3]{\frac{-27}{8}} + \left(\frac{4}{9}\right)^0$

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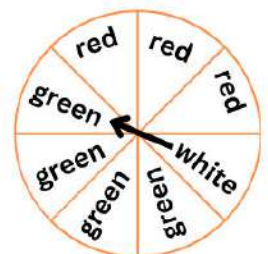
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- 4** The opposite shape represents a spinning disc game. Find :

- a** The probability that the pointer stops at the colour:

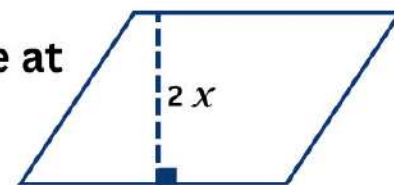
- 1** Red
- 2** Green



- b** The probability that the pointer does not stop at the colour red.

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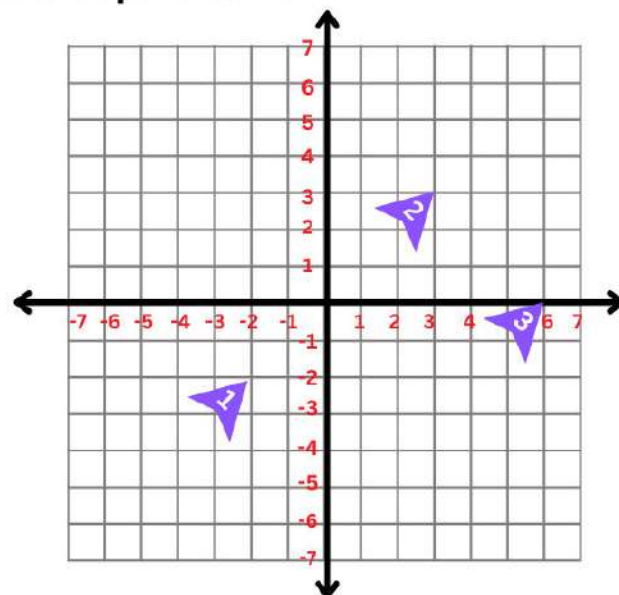
- 5 If the area of the opposite parallelogram is $(2x^3 + 4x^2 + 10x)$ square unit. and its height $2x$ unit length. Find the length of the height's corresponding base at term x



- 6 The opposite graph represents the movement of one shape in different positions with the coordinates of the position.

- a Find the translation that makes shape 2 the image of shape 1.

- b Find the translation that makes shape 3 the image of shape 1.



- 7 Draw the triangle XYZ where $YZ = XZ = 5$ cm, $XY = 6$ cm. then bisect both $\angle Y$ and $\angle X$ with two bisectors intersecting at point M. Is $MX = MY$?

Q1 Choose the correct answer

- 1 What is the result of subtracting $(a - b)^2$ from $(a + b)^2$?
 (a) 0 (b) $2ab$ (c) $-4ab$ (d) $4ab$
- 2 Which of the following equals -4^2 ?
 (a) 16 (b) -16 (c) 8 (d) -8
- 3 ----- $\div (9x^2y) = 3xy^2$
 (a) $3xy^2$ (b) $3xy$ (c) $27x^3y^3$ (d) $27xy$
- 4 Which of the following numbers is not in scientific notation ?
 (a) 1.54×10^2 (b) -1.54×10^2 (c) 1.54×10^3 (d) -15.4×10^3
- 5 What is the value of $\sqrt[3]{\sqrt{64}}$
 (a) 2 (b) 4 (c) 8 (d) 64
- 6 A rhombus has one diagonal of length 10 cm and an area of 40 square centimeters, thus the length of the other diagonal equals..... cm.
 (a) 4 (b) 6 (c) 8 (d) 16
- 7 if $x \in \mathbb{Z}$, which of the following is a solution to the inequality: $1 - 2x < 3$?
 (a) 0 (b) -1 (c) -2 (d) -4
- 8 A card carrying a letter from the name (Fatima) is drawn randomly , what is the probability that the letter is (m)?
 (a) $\frac{1}{4}$ (b) $\frac{2}{3}$ (c) $\frac{1}{5}$ (d) $\frac{1}{6}$
- 9 What is the image of the point (a , b) by translation $(x, y) \longrightarrow (x + 2, y - 3)$
 (a) $(a - 3, b + 2)$ (b) $(a + 2, b - 3)$
 (c) $(2, -3)$ (d) $(a + 2, b + 3)$

Q2 Answer the following

- 1** A trapezium has an area of 63 square feet and the lengths of its parallel bases are 10 feet and 8 feet. Calculate its height.

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- 2** Find the quotient of : $(x^3 + x + 10)$ divided by $(x + 2)$.

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- 3** Find the solution set for the inequality in Z : $2(x + 5) - 3 < 12$

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- 4** A bag contains one red ball , 6 blue balls , and 3 green balls , all balls are identical. If a ball is drawn randomly from the bag and its colour is observed , find the probability that the drawn ball is :

a blue

b red

c blue or green

- 5 Arrange the following numbers in an ascending order :

$$7 \times 10^5, 7.8 \times 10^8, 1.1 \times 10^8, 54 \times 10^4$$

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- 6 Find the image of the square BYMX
by rotation $R(M, 90^\circ)$ followed by rotation $R(M, 90^\circ)$.

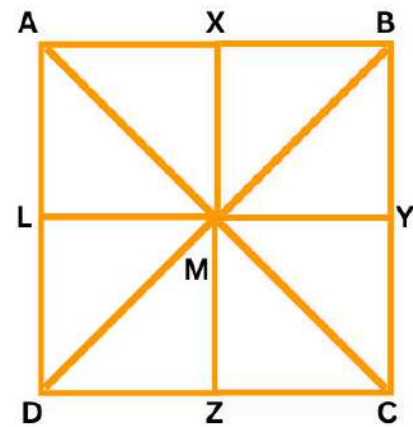
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- 7 Draw the triangle LMN where $LM = 3 \text{ cm}$,
 $m(\angle L) = 90^\circ$, and $m(\angle M) = 30^\circ$.
Find the length of \overline{MN} .

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Q1 Choose the correct answer

- 1 Which of the following equals $\sqrt{10^2 - 8^2}$
 (a) 2 (b) 6 (c) 36 (d) 64
- 2 The identity rotation is a rotation around the origin by an angle of measure -----
 (a) 90° (b) 180° (c) 270° (d) 360°
- 3 A square has a side length of s and an area A .
 What is the area of the square whose diagonal is $2s$?
 (a) A (b) $2A$ (c) $4A$ (d) A^2
- 4 If the speed of light is equal to $300,000 \text{ km/s}$, then what is the speed of light in m/s ?
 (a) 3×10^5 (b) 3×10^7 (c) 3×10^8 (d) 3×10^{10}
- 5 $8abc \div (8ab) = \text{-----}$
 (a) 1 (b) $8c$ (c) c (d) zero
- 6 What is the inequality that expresses "three times the number x is less than 4" ?
 (a) $3x \geq 4$ (b) $3x \leq 4$ (c) $4x \geq 3$ (d) $4x \geq 3$
- 7 If $(2x + 3)(x - 5) = 2x^2 + bx - 15$, then what is the value of b ?
 (a) $-7x$ (b) -7 (c) $7x$ (d) 7
- 8 When rolling a fair die 10 times consecutively , if the number 6 appears twice on the upper face of the die ,
 then what is the experimental probability of not appearing a 6 ?
 (a) $\frac{2}{10}$ (b) $\frac{5}{6}$ (c) $\frac{8}{10}$ (d) $\frac{1}{6}$

9 Which of the following expresses $\frac{a^6}{a^{-4}}$ in its simplest form ?

(a) a^{10}

(b) a^2

(c) a^{-2}

(d) a^{-10}

Q2 Answer the following

1 Find the solution set for the equation in Z : $(X + 3)^3 = 64$

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2 Find the quotient of : $(X^2 - 64)$ divided by $(X - 8)$

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3 Find in its simplest form: $\frac{(-x)^6 \times x^3}{(-x)^5 \times (-x)^2}$

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4 Find the area of the opposite trapezium.

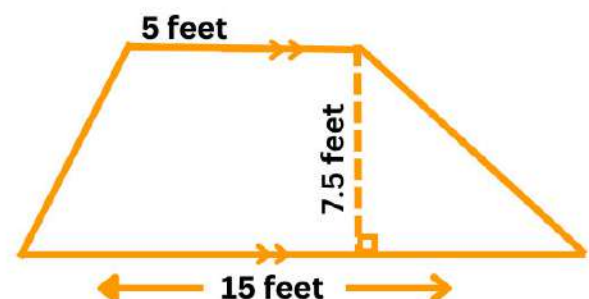
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- 5 A bag contains 15 identical cards numbered from 1 to 15. One card is drawn at random , and the number on the drawn card is observed.

Write the following events :

a A is the event "the number is even and greater than 10".

b B is the event "the number is a factor of 12".

- 6 Draw an angle with vertex A and its measure 120° , then divide it into 4 equal angles using a ruler and compass.

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- 7 Draw the triangle whose vertices are the points:

A (3 , 2) , B (8 , 2) , and C (8 , 6) .

then draw its image by reflection in the X-axis.

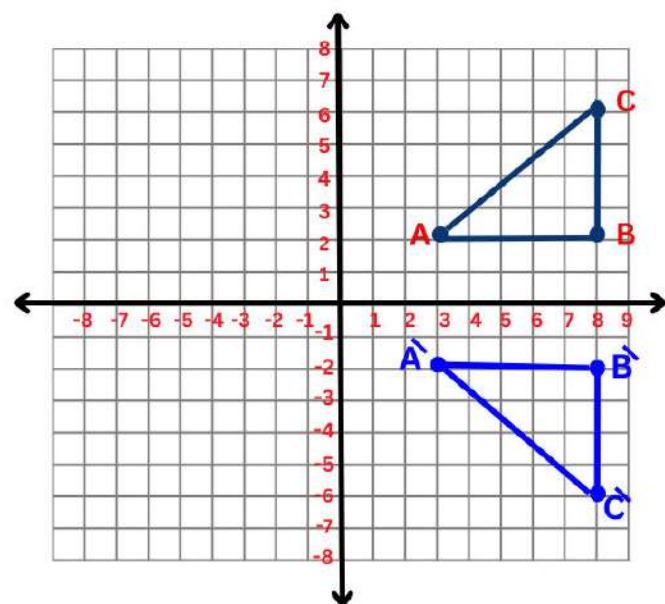
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Q1 Choose the correct answer

- 1 If $a + b = 4$, and $a - b = 3$, then what is the value of $a^2 - b^2$?
 (a) 7 (b) 12 (c) 1 (d) -1
- 2 What is the standard form of the number -3.2×10^4 ?
 (a) -32 000 (b) -0.00032 (c) -320 000 (d) -0.00032
- 3 What is the image of the point $(-2, 1)$ by rotation $R(O, 180^\circ)$?
 (a) $(2, 1)$ (b) $(1, 2)$ (c) $(-1, -2)$ (d) $(2, -1)$
- 4 If $(5x^2 + 15x) \div (-5x) = ax - 3$, then what is the value of a ?
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- 5 Which of the following equals $2 \times 2 \times 2 \times 2 \times 2$
 (a) 2×5 (b) 5^2 (c) 2^5 (d) $2 + 5$
- 6 $(2ab)(2a + 2b) = \text{-----}$
 (a) $4a^2b + 4ab^2$ (b) $4a^2b^2$ (c) $4ab^2$ (d) $2ab^2 + 2a^2b$
- 7 If $-\sqrt{4} = \sqrt[3]{a}$, then what is the value of a ?
 (a) -2 (b) 4 (c) 8 (d) -8
- 8 If the area of a square is 50 square meters, then the length of its diagonal is ----- meters
 (a) 100 (b) 10 (c) 25 (d) 5
- 9 Selecting a ball from a basket containing 4 identical balls, all are red is -----
 (a) a random experiment. (b) not a random experiment.
 (c) an impossible event. (d) a simple event.

- 1 A square piece of agricultural land with a diagonal length of 8 kilometers. Find its area.

$$\text{The area of the square} = \frac{1}{2} \times d^2 = \frac{1}{2} \times 8^2 = 32 \text{ cm}^2$$

- 2 Simplify to its simplest form : $(2x - 5)(2x + 5) + 25$
then find the numerical value of the result when $x = 2$

$$\text{The expression : } 4x^2 - 25 + 25 = 4x^2$$

$$\text{The value : } 4 \times (2^2) = 4 \times 4 = 16$$

- 3 Find the simplest form of : $\sqrt{\frac{9}{4}} + \sqrt[3]{\frac{-27}{8}} + \left(\frac{4}{9}\right)^0$

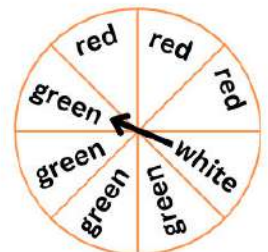
$$\frac{3}{2} + \frac{-3}{2} - 1 = -1$$

- 4 The opposite shape represents a spinning disc game. Find :

- a) The probability that the pointer stops at the colour:

1 Red $\frac{3}{8}$

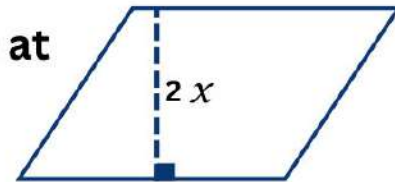
2 Green $\frac{4}{8} = \frac{1}{2}$



- b) The probability that the pointer does not stop at the colour red.

$$\frac{5}{8}$$

- 5** If the area of the opposite parallelogram is $(2x^3 + 4x^2 + 10x)$ square unit. and its height $2x$ unit length.
Find the length of the height's corresponding base at term x



The base = $\frac{2x^3 + 4x^2 + 10x}{2x} = x^2 + 2x + 5$ length units.

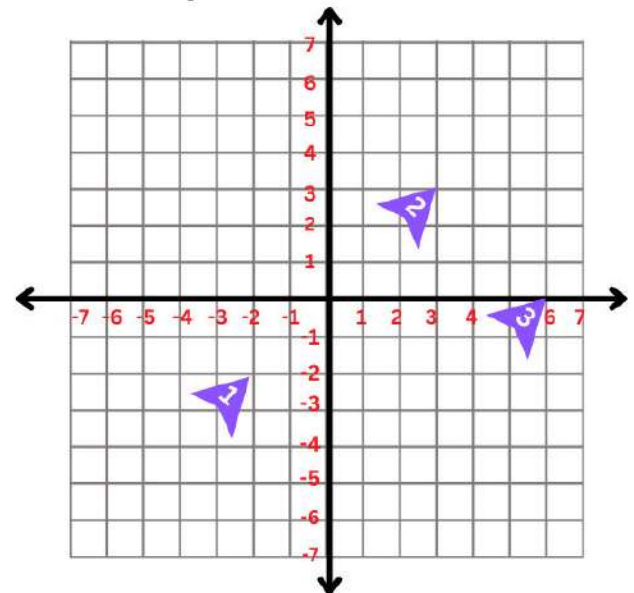
- 6** The opposite graph represents the movement of one shape in different positions with the coordinates of the position.

- a** Find the translation that makes shape 2 the image of shape 1.

$(x + 5, y + 5)$

- b** Find the translation that makes shape 3 the image of shape 1.

$(x + 8, y + 2)$



- 7** Draw the triangle XYZ where $YZ = XZ = 5$ cm, $XY = 6$ cm. then bisect both $\angle Y$ and $\angle X$ with two bisectors intersecting at point M.

Is $MX = MY$?

Draw by yourself

Q1 Choose the correct answer

- 1 What is the result of subtracting $(a - b)$ from $(a + b)$?
 (a) 0 (b) $2ab$ (c) $-4ab$ (d) $4ab$
- 2 Which of the following equals -4^2 ?
 (a) 16 (b) -16 (c) 8 (d) -8
- 3 ----- $\div (9x^2y) = 3xy^2$
 (a) $3xy^2$ (b) $3xy$ (c) $27x^3y^3$ (d) $27xy$
- 4 Which of the following numbers is not in scientific notation ?
 (a) 1.54×10^2 (b) -1.54×10^2 (c) 1.54×10^3 (d) -15.4×10^3
- 5 What is the value of $\sqrt[3]{\sqrt{64}}$
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 (a) 4 (b) 6 (c) 8 (d) 16
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 (a) 0 (b) -1 (c) -2 (d) -4
- 8 A card carrying a letter from the name (Fatima) is drawn randomly , what is the probability that the letter is (m)?
 (a) $\frac{1}{4}$ (b) $\frac{2}{3}$ (c) $\frac{1}{5}$ (d) $\frac{1}{6}$
- 9 What is the image of the point (a, b) by translation $(x, y) \longrightarrow (x + 2, y - 3)$
 (a) $(a - 3, b + 2)$ (b) $(a + 2, b - 3)$
 (c) $(2, -3)$ (d) $(a + 2, b + 3)$

- 1 A trapezium has an area of 63 square feet and the lengths of its parallel bases are 10 feet and 8 feet. Calculate its height.

$$\text{The area} = \frac{1}{2} (b_1 + b_2) \times h \quad 63 = \frac{1}{2} (10 + 8) \times h$$

$$h = \frac{63}{9} = 7$$

The length of the height = 7 cm.

- 2 Find the quotient of : $(x^3 + x + 10)$ divided by $(x + 2)$.

$$\text{The quotient} = x^2 - 2x + 5$$

- 3 Find the solution set for the inequality in Z : $2(x + 5) - 3 < 12$

$$2x + 10 - 3 < 12$$

$$2x + 7 < 12$$

$$2x < 12 - 7$$

$$2x < 5$$

$$x < \frac{5}{2}$$

$$\text{S.S} = \{ 2, 1, -1, \dots \}$$

- 4 A bag contains one red ball , 6 blue balls , and 3 green balls , all balls are identical. If a ball is drawn randomly from the bag and its colour is observed , find the probability that the drawn ball is :

a blue $\frac{6}{10} = \frac{3}{5}$

b red $\frac{1}{10}$

c blue or green $\frac{9}{10}$

- 5 Arrange the following numbers in an ascending order :

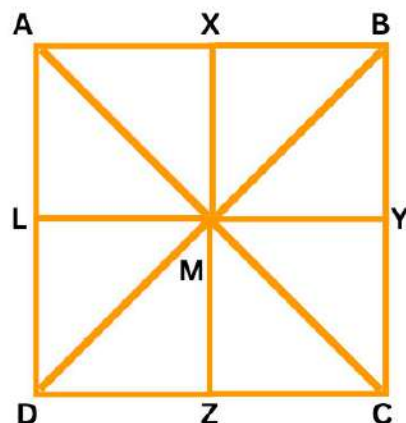
$$7 \times 10^5, 7.8 \times 10^8, 1.1 \times 10^8, 54 \times 10^4$$

$$54 \times 10^4, 7 \times 10^5, 1.1 \times 10^8, 7.8 \times 10^8$$

- 6 Find the image of the square BYMX
by rotation $R(M, 90^\circ)$ followed by rotation $R(M, 90^\circ)$.

The image of the square BYMX $\xrightarrow{R(M, 90^\circ)}$

The square AXML $\xrightarrow{R(M, 90^\circ)}$ The square DLMZ



- 7 Draw the triangle LMN where $LM = 3 \text{ cm}$,
 $m(\angle L) = 90^\circ$, and $m(\angle M) = 30^\circ$.
Find the length of \overline{MN} .

Draw by yourself

From the drawing, the length of $\overline{MN} = 3.5 \text{ cm}$

Q1 Choose the correct answer

- 1 Which of the following equals $\sqrt{10^2 - 8^2}$
 (a) 2 (b) 6 (c) 36 (d) 64
- 2 The identity rotation is a rotation around the origin by an angle of measure -----
 (a) 90° (b) 180° (c) 270° (d) 360°
- 3 A square has a side length of s and an area A .
 What is the area of the square whose diagonal is $2s$?
 (a) A (b) $2A$ (c) $4A$ (d) A^2
- 4 If the speed of light is equal to $300,000 \text{ km/s}$, then what is the speed of light in m/s ?
 (a) 3×10^5 (b) 3×10^7 (c) 3×10^8 (d) 3×10^{10}
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 (a) $3x \geq 4$ (b) $3x < 4$ (c) $4x \geq 3$ (d) $4x > 3$
- 7 If $(2x + 3)(x - 5) = 2x^2 + bx - 15$, then what is the value of b ?
 (a) $-7x$ (b) -7 (c) $7x$ (d) 7
- 8 When rolling a fair die 10 times consecutively , if the number 6 appears twice on the upper face of the die ,
 then what is the experimental probability of not appearing a 6 ?
 (a) $\frac{2}{10}$ (b) $\frac{5}{6}$ (c) $\frac{8}{10}$ (d) $\frac{1}{6}$

9 Which of the following expresses $\frac{a^6}{a^{-4}}$ in its simplest form ?

(a) a^{10}

(b) a^2

(c) a^{-2}

(d) a^{-10}

Q2 Answer the following

1 Find the solution set for the equation in Z : $(X + 3)^3 = 64$

$$\sqrt[3]{(x + 3)} = 64$$

$$X + 3 = 4$$

$$X = 4 - 3 = 1 \quad \text{S.S} = \{1\}$$

2 Find the quotient of : $(X^2 - 64)$ divided by $(X - 8)$

$$\text{The quotient} = X + 8$$

3 Find in its simplest form: $\frac{(-x)^6 \times x^3}{(-x)^5 \times (-x)^2}$

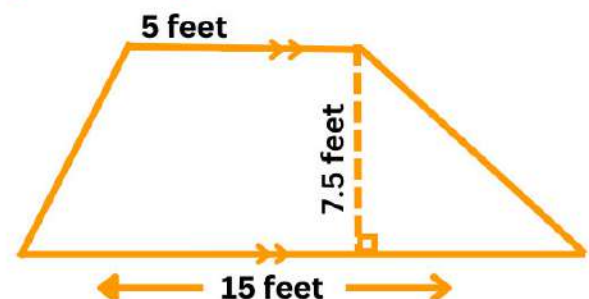
$$\frac{x^6 \times x^3}{-x^5 \times x^2} = \frac{x^9}{-x^7} = -x^{9-7} = -x^2$$

4 Find the area of the opposite trapezium.

$$\text{The area} = \frac{1}{2} (b_1 + b_2) \times h \quad A = \frac{1}{2} (15 + 5) \times 7.5$$

$$A = 75 \text{ square feet}$$

$$\text{The Area of trapezium} = 75 \text{ square feet}$$



- 5 A bag contains 15 identical cards numbered from 1 to 15. One card is drawn at random , and the number on the drawn card is observed. Write the following events :

(a) A is the event "the number is even and greater than 10". $\frac{2}{15}$

(b) B is the event "the number is a factor of 12". $\frac{6}{15} = \frac{2}{5}$

- 6 Draw an angle with vertex A and its measure 120° , then divide it into 4 equal angles using a ruler and compass.

Draw by your self

- 7 Draw the triangle whose vertices are the points:

A (3 , 2) , B (8 , 2) , and C (8 , 6) .

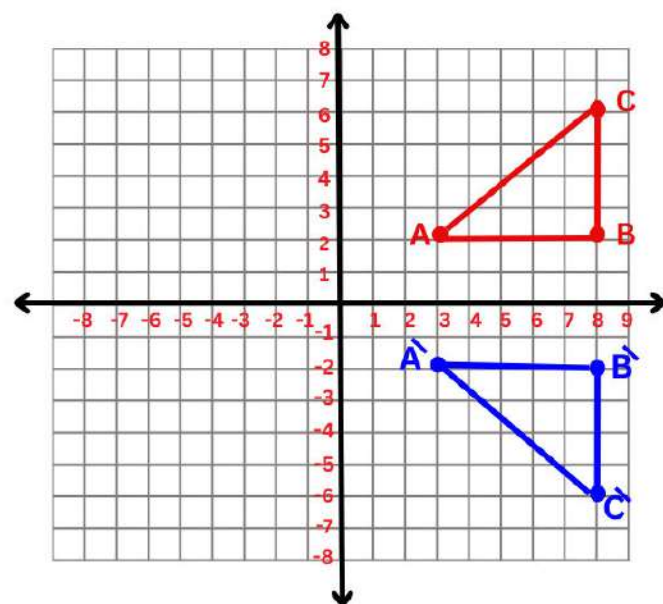
then draw its image by reflection in the X-axis.

By reflection on X axis

A (3 , 2) \longrightarrow A' (3 , -2)

B (8 , 2) \longrightarrow B' (8 , -2)

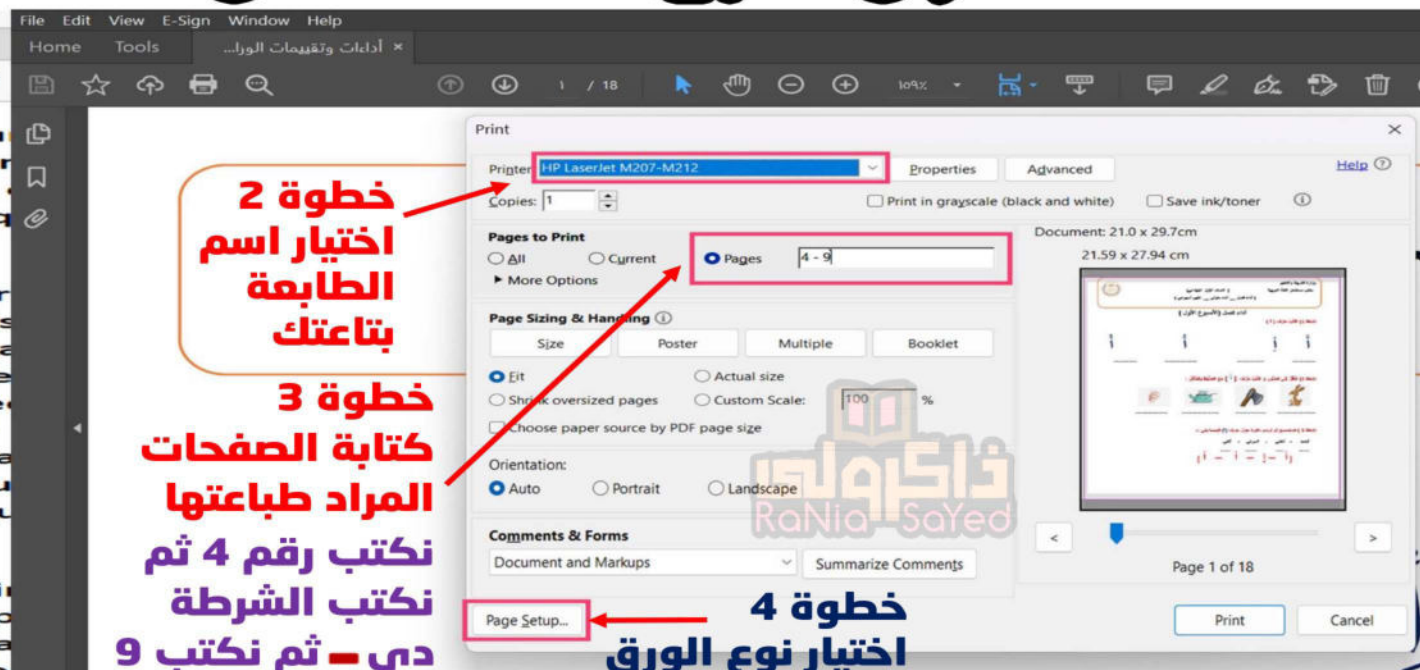
C (8 , 6) \longrightarrow C' (8 , -6)



كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



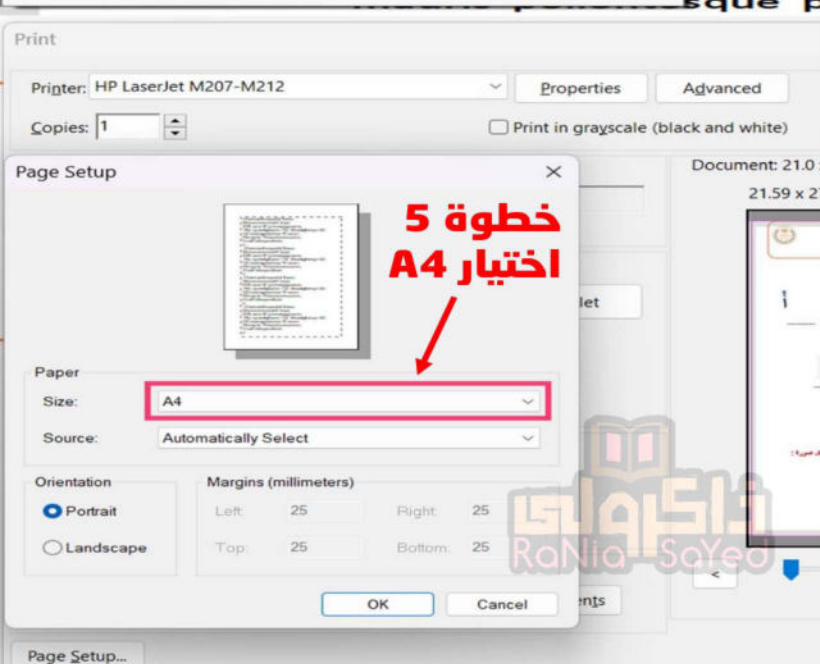
خطوة 1



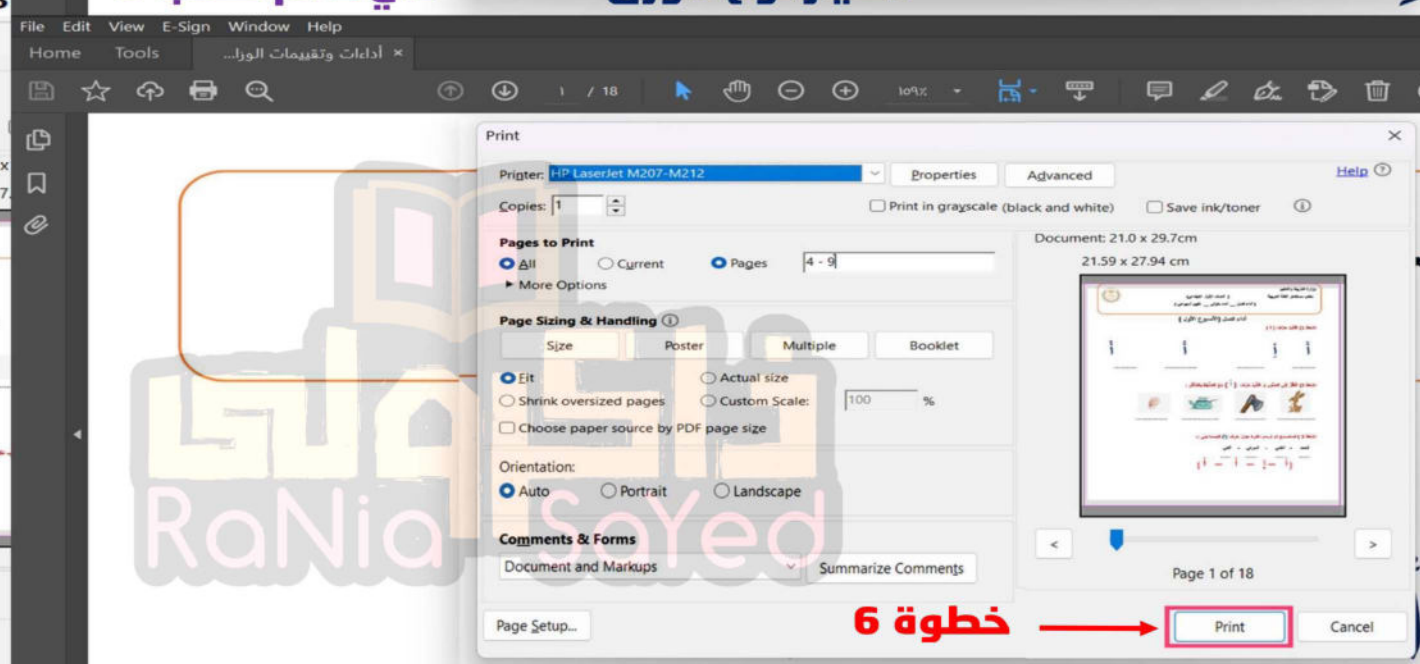
خطوة 2
اختيار اسم
الطابعة
بتاعتك

خطوة 3
كتابة الصفحات
المراد طباعتها
نكتب رقم 4 ثم
نكتب الشرطة
دي - ثم نكتب 9

خطوة 4
اختيار نوع الورق



خطوة 5
اختيار A4



خطوة 6